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Educational News and Editorial Comment

THE BEST PLAN FOR THE ADMINISTRATION OF THE PUBLIC SCHOOLS OF A CITY

For a number of years the city of Chattanooga, Tennessee, has had a commission form of government. The department of education is one of the departments of the city government and is under the general administrative control of one of the commissioners, who is known as the commissioner of education. At the last session of the legislature a bill was passed authorizing the citizens of Chattanooga by referendum vote to substitute a board of education for the present commission form of school administration.

One of the citizens of Chattanooga has addressed the following inquiry to Professor Nelson B. Henry, of the Department of Education of the University of Chicago.

> For our enlightenment and for our information I wish that you would write me which, in your opinion, is the better of the two plans of school administration, the commissioner-of-education plan or the board of education. If your choice does not lie in either of these two, I would be interested in hearing from you as to what, in your judgment, is the best plan of administration of the public schools of a city.

For some time Professor Henry, in co-operation with Professor Leonard D. White, of the Department of Political Science of the University of Chicago, has been engaged in making a case-study investigation of the relations of schools to city government. Whatever opinion he may entertain with respect to such relations grows out of an intimate knowledge of their practical consequences. For that reason, we quote at some length the pertinent portions of Professor Henry's answer to the inquiry addressed to him.

My impression is that the type of organization for the control of public education does not determine the character of the administration of the schools. . . . . We have the examples of Pittsburgh, Cincinnati, Baltimore, and Louisville, where the schools are entirely free from the handicap of political influence; although in the earlier history of each of these cities the schools were very largely dominated by political machines. On the other hand, we have the notorious example of Chicago, where practically all policies with respect to the schools are decided in the city hall. Nor can these differences be explained in terms of manner of selection of the school board itself. In both Chicago and Baltimore the members of the board of education are appointed by the mayor. In both instances the mayor is elected on a partisan ticket and is sponsored by the usual type of political machine. In Baltimore the mayor, if so disposed, would not appoint politicians to membership on the board of education because the community revolted against such procedure several years ago and will not now tolerate any political interference with the schools. In Chicago the board of education is legally independent of the mayor once the appointment is made and approved by the city council. But members of the board of education are ordinarily in political collusion with the dominating political machine and are entirely subservient to the dictates of the mayor and the machine on all matters in which the politicians are interested. In Pittsburgh the board of education is appointed by the judges of the Court of Common Pleas. The result is all that could possibly be asked for in the way of representation of the best type of citizenship on the board. If such a plan were followed at the present time in Chicago, where judges are nominated and elected by the same political forces which usually control the elections of other public officials, there is no assurance that members of the board of education would be selected on any other basis than under the present plan. In both Louisville and Cincinnati the board of education is elected by popular vote, and in both cities we find a splendid board of education. If the members of the board of education of Chicago were chosen by popular election, there is no question but that we would have the same kind of board that we now have. These examples will indicate to you the basis of my conviction that you cannot settle the question of the character of the administration of the schools of your city by providing for any given plan of control. If the citizens of your community cannot secure the proper type of control through the agency of the

commissioner, it seems to me very doubtful that their interest in the schools would manifest itself in any very different way in connection with the election of members to the school board. In every situation the politicians will be alert to take advantage of whatever possibilities they have to establish their control, and invariably they will go as far as they dare to go in the exercise of control over the schools for political purposes.

In at least one respect it seems to me that the commissioner plan ought to provide an easier way for the community to regulate the type of control to which the schools are subjected than is likely to be the case under the school-board plan. Each member of a school board is likely to have some particular interest in the school system which leads him to attempt to exercise some measure of control over some given phase of the school work or some particular policy of school administration. The result is a tendency for the board members to make concessions to one another and in time to build up a set of traditions which make the board of education an administrative rather than a policy-forming group. Dr. Judd has written an excellent statement about the tendency of school boards to interfere with the proper administration of the public schools. You will find this article in the February number of the *Nation's Schools*, published at 919 North Michigan Avenue, Chicago. Under the commissioner plan the responsibility for any administrative mismanagement would be definitely fixed upon one individual rather than distributed among several as is the case when a school board is in control. It would seem to me that this would make it easier for the community to demand and secure the right kind of control.

My own observations lead me to believe that the internal administrative organization is at least as vital a matter with respect to the welfare of the schools as is the type of authoritative control. In cities where the school system has two or more co-ordinate executive officers, there is likely to be a rather close alignment of the board of education with the business executive and a disposition on the part of the board to manifest more or less aloofness in relation to the office of the superintendent. Moreover, the board quickly finds that it can use the officer of an independent business executive to discharge political obligations with impunity, whereas it always finds the superintendent an obstacle to such efforts when the superintendent carries the entire responsibility for the character of the administration of the schools. Some time ago I had occasion to explain the effect of a divided administrative authority in the school system of Chicago, and the paper was published in the *Elementary School Journal* for March, 1932. . . . .

I am not at all certain that this letter has given you anything that will be of material advantage to you in your effort to find out what is the best thing to do for the schools of Chattanooga. Frankly, I do not have a very positive opinion on the matter of the best type of control. The most pronounced opinion I have is that the type of control will not in itself insure a good administration of the school system in your city any more than it explains the good or bad administration of different school systems. I think that any community can have as good administration in the schools as the intelligent leaders of the community

will take the trouble to secure. It may be that this result can be obtained more readily in some communities under the board-of-education plan and in other communities under some other plan. If I were a resident of your city, I would support any plan on which the good citizens of the community would unite for the avowed purpose of securing and maintaining an absolutely non-political administration of the schools.

An Educational Advisory Committee for the State of New York

The New York State Economic Council has announced the appointment of an Educational Advisory Committee to be composed of the following persons: Henry W. Holmes, dean of the Harvard Graduate School of Education; William S. Learned, Carnegie Foundation for the Advancement of Teaching; Charles R. Mann, director of the American Council of Education; Albert B. Meredith, head of the Department of School Administration, New York University; and Frank E. Spaulding, professor of education, Yale University. The services of the committee will be available free of charge to any community of the state which may care to avail itself of expert appraisal of its educational program. The following statement by Merwin K. Hart, president of the Economic Council, describes in some detail the nature of the services which it is hoped the committee may be able to perform.

Several years of study and effort devoted to the promotion of efficiency and economy in the conduct of public affairs in this state have impressed the New York State Economic Council with the critical character of problems involved in the current maintenance of public education. On the one hand, the raising of funds for the support of schools, as for all public enterprises, grows constantly more difficult, and the demands of taxpayers for relief from burdens that seem intolerable are becoming ever more impatiently insistent. On the other hand, there is growing anxiety and redoubled effort on the part of those in charge of the schools to maintain and improve an educational program developed in the days of financial prosperity.

Taxpayers demanding relief can hardly be expected to overlook the possibilities of economies in the public schools, which absorb a large proportion of the public revenues. Unfortunately, taxpayers, as a rule, have too little contact with the program of public education to appreciate the full significance and relative importance of the various parts of that program. As a result, their demands for tax relief, often expressed in terms of definite curtailments and eliminations in the educational program, are likely to be interpreted by educators as an attack on the school system. Attack means hostility; those attacking are felt to be enemies of public education. Assigned that rôle, it is extremely

difficult for the over-burdened taxpayer not to seem, at least, to justify it. But as every sincere person must recognize, no condition could be worse for public education and the public welfare than hostility between those in charge of the public schools and those who pay the bills for their support. The real and lasting interests of these two groups are inseparable. At no previous time has the need of their appreciative co-operation been so acute. Such co-operation, to be permanently effective, must be securely based on mutual understanding of the educational-financial problems involved in the uninterrupted maintenance of a sound and economical system of public schools.

Moved by the desire to provide an agency dedicated disinterestedly to the furtherance of such mutual understanding, the New York State Economic Council has enlisted the co-operation of five educators of national standing who will serve as an Educational Advisory Committee. . . . .

Opportunities for the service of this Educational Advisory Committee in the state of New York may be found wherever those in charge of schools and those on whom the schools are dependent for financial support are seeking efficiency and economy in education. Especially in circumstances in which the immediate concerns of administrators and financial supporters of education are in collision, or tending toward collision, this advisory committee should be of distinct service to education and to all interests involved.

Initiative for the procurement of the services of the Educational Advisory Committee must be taken or approved by educational officials; the committee has no disposition to intrude its services on anyone. The procedure of the committee, wherever it appears that it can be of service, will be especially adapted to each situation. In general, the methods of the typical school survey, in which members of the committee are widely experienced, will not be followed. Everywhere today the pressing need is for prompt and wise action on the part of responsible officials. The typical "survey" accumulation and burial in bulky volumes of innumerable factual data, beautifully charted and graphed, with a disconcerting array of recommendations, is not likely to meet this need. The committee proposes, rather, co-operative study of major educational-financial problems, taking account, of course, of all significant factual data bearing on these problems. In such study the committee proposes the active participation of responsible local officials and representatives of educational and financial interests. It is confidently believed that, working in co-operation with such officials and representatives, the Educational Advisory Committee, widely experienced but immediately disinterested, can be of genuine service.

Such co-operative study, including appraisal and constructive planning looking to prompt action, all with due consideration of the immediate and long-time interests of a sound and economical educational program, is a procedure of great promise. It promises not merely adequately considered, wise action in immediate situations; but also, and perhaps of even more importance, it promises wider and better understanding of the interrelated problems of public education and public finance, an understanding which is today largely and deplorably lacking.

Within necessary limitations, the advisory service, as here outlined, is avail-

able to responsible officials without cost. Such officials are invited to communicate with the chairman, Dr. Frank E. Spaulding, 608 Chrysler Building, New York City.

An Analysis of Current Criticism of the Public Schools

A recent brochure entitled *Evaluating the Public Schools*, which has been published by the Phi Delta Kappa Fraternity for the Joint Commission on the Emergency in Education, contains an analysis of the most frequent criticisms of the schools made both by laymen and by professional educators. The following statement is quoted from the brochure.

For the purpose of provoking discussion it will be of value to bring together in a systematic fashion some of the most frequent current criticisms of the public schools. These criticisms were obtained by scanning forty-four articles written between 1928–33 by laymen for magazines of national circulation; twenty articles prepared by educators for the same list of magazines; twelve recent professional books; and a list of criticisms of secondary education prepared by eighty-eight specialists. The general types of criticisms revealed from these four sources are summarized in [the accompanying] table.

No one should assume that the criticisms listed in the table are applicable in whole or in part to every local school system. Some criticisms are obviously based upon unpleasant personal experiences with individual schools or teachers; others are selfish in motive and destructive in intent. But neither teachers nor citizens can dismiss all of the statements without careful examination. Students of education realize that the schools are not perfect. Thoughtful citizens believe that public education can be improved.

The table does not reveal a situation in which laymen are attacking the schools while school people defend them. Neither laymen nor educators are agreed upon the proper aims and methods of public education. One group criticizes the schools because they have no contact with life, while another group deplores the overemphasis on practical things. One group believes that the discipline in the schools is too severe and too much inclined to suppress individuality, while another group feels that easy and agreeable teaching methods are making children selfish and incompetent. One critic feels that the modern curriculum is too varied and urges return to the simpler offerings which prevailed years ago. Another criticizes the schools because the curriculum is too narrow, formal, and traditional. On the whole, the evidence indicates a common concern for the improvement of the schools and diverse opinions among both educators and laymen as to the methods of bringing about improvement.

It is apparent, also, particularly to one who reads the articles in lay magazines with care, that criticisms are often based on inadequate contact with the American school system as a whole. This lack of a broad knowledge of the schools would indeed be inferred from the fact that different critics condemn the

schools for opposite things. Many of the articles begin by reciting the experience of the writer with the public schools. Frequently the writer's own child or the child of a neighbor is the starting point. Some of the articles apparently accept the reports of the children themselves at full value without any attempt to secure the point of view of teachers or school officers. That an individual parent or taxpayer should criticize the schools in the light of his own experience with them is entirely understandable. That such experience is an adequate basis for sweeping indictments of the public-school system as a whole can hardly be granted.

RECENT CRITICISMS OF THE SCHOOLS

General Type of Criticism of the Schools	Number of Articles in General Magazines			Criticisms in 12 Professional Books	Rank Order of the Criticisms of 88 Specialists in Secondary Education
	44 Laymen	20 Educators	Total: 64 Articles		
1. "Soft" pedagogy; too many frills	12	7	19	1	1
2. Lack of contact with life	6	6	12	5	2
3. Overemphasis on vocational aims	6	1	7	2	.....
4. Severe discipline; overwork of students	6	1	7	.....	6
5. Neglect of character development	6	.....	6	.....	3
6. Mass-education methods	4	1	5	1	5
7. Suppression of individuality	3	2	5	2	.....
8. Neglect of gifted children	3	.....	3	.....	.....
9. Control by faddists	1	2	3	2	.....
10. Neglect of traditional subjects	1	1	2	.....	.....
11. Neglect of civic and social efficiency	*	*	*	6	7
12. Improper emphasis on high-school athletics	.....	.....	.....	.....	4

* Included with Item 2.

It is not the purpose of this publication to attempt to answer one by one or in formal fashion the current criticisms of the aims and methods of education. Such a rebuttal must largely be developed on a local basis. Any one of these criticisms, as applied to a particular school system, may be wholly untrue, partly true, or entirely accurate. If it be untrue, the evidence should be marshaled by local school authorities to demonstrate its inaccuracy. If partly true, the excesses of the indictment can be pointed out and the steps that are being taken or planned to remedy the admitted shortcoming can be frankly listed. If, however, the criticism is valid, it will be necessary to accept it and to prepare at once to take the needed remedial measures.

New Sources of Revenue for School Support

An examination of legislation enacted during the past five years reveals interesting and significant trends in the development of new types of taxes as sources of school revenue. The following summary statement of these trends is quoted from a recent number of the Research Bulletin of the National Education Association entitled *Five Years of State School Revenue Legislation, 1929–33*.

The general trends with respect to the number of states levying certain types of taxes, the number allocating all or part of the revenue for state school support, and the number in which these taxes contribute to state school support indirectly through appropriations from the general funds, are indicated in [the accompanying] table.

TAX PROVISIONS AFFECTING SCHOOL SUPPORT
IN THE YEARS 1928–33

	Number of States in Year					
	1928	1929	1930	1931	1932	1933
States levying:						
Personal-income taxes	11	14	14	18	20	24
Corporation-income taxes	12	16	16	20	21	26
General-sales taxes	4	5	6	7	6	17
Chain-store taxes	2	4	7	10	10	19
Tobacco-sales taxes	11	11	11	13	14	16
States allocating all or part to public education:						
Personal-income taxes	3	4	4	6	8	11
Corporation-income taxes	1	2	2	4	5	8
General-sales taxes	0	0	0	0	0	7
Chain-store taxes	0	1	1	2	3	9
Tobacco-sales taxes	5	3	3	5	5	6
States in which tax contributes to education indirectly through significant appropriations from the general funds:						
Personal-income taxes	7	8	8	9	9	10
Corporation-income taxes	9	11	11	12	12	14
General-sales taxes	3	4	5	6	5	9
Chain-store taxes	1	2	4	4	3	7
Tobacco-sales taxes	3	4	5	5	6	6

General Trends in Tax Adoption

1. *The number of states taxing personal incomes and the number taxing corporation incomes more than doubled between 1928 and 1933.* In 1928 there were eleven states levying personal-income taxes and twelve levying corporation-income taxes. The number of states using these taxes has steadily risen, showing most

rapid increases in 1931 and 1933. In 1933 twenty-four states taxed personal incomes and twenty-six states taxed corporation incomes.

2. *Within a single year, 1933, the number of states levying general-sales taxes more than doubled.* In 1928 there were four states levying this tax; by 1932 there were six; and in 1933 the number increased to seventeen.

3. *The number of states having chain-store taxes increased from two in 1928 to nineteen in 1933.* In the latter year the number nearly doubled as compared with ten states in 1932.

4. *The number of states taxing sales of tobacco increased only slightly between 1928 and 1933.* There were eleven in 1928 as compared with sixteen in 1933.

Revenues Allocated to Education

1. *There is a growing tendency to earmark personal- and corporation-income taxes, general-sales taxes, and chain-store taxes for the purpose of state school support.* While the number of states levying personal-income taxes more than doubled, the number allocating all or part of the revenues for the schools more than trebled. The number of states levying corporation-income taxes more than doubled, whereas the number earmarking the revenues for the schools increased eightfold. This has been a steadily increasing development throughout the 1928–33 period.

2. *Just as the greatest development in sales taxes took place in 1933, the only development in earmarking sales-tax revenues for schools also took place in this year.* Before 1933 none of the states levying this type of tax earmarked the revenues for the schools; in this year seven states adopted the practice.

3. *Likewise, the development of allocating chain-store tax revenue for schools took place almost entirely within 1933.* Neither of the two states levying chain-store taxes in 1928 earmarked the revenues for schools; only three of the [ten] states levying this type of tax in 1932 did so; but in 1933 nine of nineteen states had this provision.

Indirect Contributions to Education

There are two general ways by which tax revenues may become available for the schools. First, the statute levying the tax may direct that the funds raised from it be devoted to educational purposes. The second method is to place the revenues from a given tax in a general fund out of which appropriations for the support of education may be made. The last five [rows of the] table indicate the states in which certain taxes contribute indirectly to education through appropriations from the state general funds. There has been a general tendency to increase such allotments in all of the types of taxes covered by the table.

Taxes Not Available for Education

In some states the taxes included in the table make no significant contribution to the support of education because (1) revenues are placed in funds created for other purposes or (2) revenues are placed in general funds from which the states make little or no educational appropriations. In 1933 three of the twenty-

four states having personal-income taxes and four of the twenty-six states having corporation-income taxes virtually excluded public education from the proceeds. There is a tendency for schools to profit directly or indirectly from personal-income taxes relatively more often than from corporation-income taxes. Of all these taxes, however, the general-sales tax is used, directly or indirectly, for state school support relatively more often than any of the others. Of course, it may well be that taxes from which schools receive no financial support may still be of some assistance to the schools by releasing sources of school revenue from a burden of taxation for the support of other governmental functions.

New Sources of School Revenue in New Jersey

The following statement is quoted from a recent issue of the *New Jersey Educational Review*.

Adoption of a sales tax for a period of three years, the total revenues less expenses of collection to be distributed among municipalities on an "equitable" basis for the purposes of meeting the costs of public education, was recommended to the 1934 legislature by Governor A. Harry Moore in his second annual message on January 9. The Governor also recommended that for the same three-year period the construction of state highways out of motor-vehicle fees and motor-fuel taxes be completely discontinued and that all revenues from these two sources, which would ordinarily go into construction work, be similarly apportioned among the municipalities, to be used solely for meeting appropriations for public-school purposes.

Both these measures were recommended by the Governor as part of a program to relieve real estate from "the staggering tax burden which now oppresses it." He said:

"These proposals are not, as I look at it, matters of choice, but of necessity. The people must have help to keep their homes, and a substantial part of that help must be real relief from burdensome taxation. Better roads, much as we may desire them, can wait until we are able to pay for their cost." The Governor was very definite that the taxation relief be real relief and "used only in substitution for existing taxes."

The Governor's recommendations have been indorsed by many groups, among them the Newark Teachers' Association.

The Minneapolis Experiment in the Reduction of Failure in the First Grade

It is common knowledge that the largest percentage of pupil failure occurs in the first grade and that, so far as this grade is concerned, inability to read is usually the determining factor in nonpromotion. This high percentage of failure in the first grade is entirely unjustifiable because in most instances it represents a failure,

not of the pupil, but of the school. Recognizing this fact, the curriculum department of the Minneapolis public schools has undertaken an investigation of pupil failure in the first grade with a view to determining the effect of certain factors on success in learning to read and for the purpose of securing information to be used in working out a reorganization of the curriculum of the primary grades in such a way as to reduce failure.

The following conclusions are drawn from the results of the investigation, as reported in a bulletin entitled "An Experimental Study of Pupil Failures in the First Grade," by Prudence Cutright and Walter A. Anderson: (1) A large number of the failing pupils should not have started reading when they entered the first grade because their mental ages were so low as to indicate slight possibility of success. The curriculum should be so modified as to give such pupils educational activities other than reading until such time as they have reached a satisfactory mental age. (2) Boys were more in need of special adjustment than girls. (3) Pupils in the failure group had less satisfactory home conditions than those in the passing group. (4) Health conditions in the failure group were somewhat below average, especially in general development, nutrition, nose and throat conditions, and health habits in general. (5) Pupils in the failure group had less than average ability to distinguish differences in sounds of similar words. (6) The failure group had more information regarding social and household affairs than the successful group, but less in nature-study and literature.

The following plan of organization is proposed for the elimination of needless failures in the primary grades.

Approach to the problem of reducing failure.—The fact that the percentage of failure in Minneapolis is steadily decreasing is due, to a considerable extent, to the administration's emphasis on the desirability of eliminating needless failure. Elimination of failure by administrative edict is never an entirely happy nor lasting solution of the problem. Such a method is usually unpopular with conscientious teachers because they feel that lowering the percentage of failure by such a method is somewhat superficial; that is, all too often no true change takes place; neither the child, nor the curriculum, nor the quality of the child's work changes under such a plan.

As has been pointed out, the high percentage of failure of promotion in the first grade is due undoubtedly to the contradictory nature of the criteria on which children are admitted to the first grade and that on which they achieve

promotion from the first grade to the second grade. To be more explicit, children are quite generally admitted to the first grade on the basis of their chronological age; however, their promotion from first grade to second grade depends on the development of skill in reading. Success in developing this skill is closely related to mental age. Failure to achieve promotion is quite the natural outcome of such a situation, in which children are admitted on one basis and promoted on quite a different one.

There are two ways of correcting this situation, which is laden with failure. One is to admit children to the first grade on the basis of their readiness to learn to read. Probably the child's mental age is the best single measure of such readiness. From six years to six years and one-half is the mental-age span which is usually designated as the appropriate age for beginning instruction in reading.[1] The other remedy would be to admit to first grade all pupils who are chronologically six and then to adjust the curriculum of the first grade and succeeding grades to meet the varying needs, abilities, and interests which are presented by the group. Since it is administratively difficult to refuse entrance to the first grade until children have reached the mental age of six years to six and one-half years, the second solution, that of adjusting the curriculum, seems the more feasible.

Modern education now recognizes the desirability of considering more than growth in academic skills in gauging a child's educational progress. Therefore, in adjusting the curriculum to meet the needs of these children, child growth rather than skill in reading should be considered basic. If the activities of the kindergarten and first grade are well selected and well planned, it is undoubtedly true that each and every child will "grow" in some respect. The problem of adjusting the curriculum involves a number of considerations. First, we must define what we mean by child growth, its various aspects, and its observable features. After this has been done, it will be then necessary to select those activities which will stimulate the greatest growth in as many aspects of child development as possible. The teacher must play an important part in working out both the definition of child growth and in developing the curriculum.

Purposes underlying the organization of primary divisions.—One of the first steps in adjusting the curriculum to meet the needs of first-grade children was to consider the needs of all children of the primary-age level irrespective of school grade. It was decided to organize the kindergarten, Grades I, II, and III into a promotional unit in which the curriculum would be so adjusted that practically every child would make continuous progress throughout these primary years. Otto's article[2] furnished considerable help in developing the administrative features of the plan.

[1] Mabel Vogel Morphett and Carleton Washburne, "When Should Children Begin To Read?" *Elementary School Journal*, XXXI (March, 1931), 496–503.

[2] Henry J. Otto, "Implications for Administration and Teaching Growing Out of Pupil Failures in First Grade," *Elementary School Journal*, XXXIII (September, 1932), 25–34.

The major purposes of the primary division were outlined as follows: (1) to substitute the various aspects of "child growth" for the single standard "skill in reading" as a basis of promotion; (2) to substitute individual standards of "child growth" for mass or group standards in academic achievement; (3) to provide the individual child a longer uninterrupted-by-failure period for adjusting to the school situation.

Reorganization steps.—A description of some of the steps which have been taken in accomplishing these purposes may serve to clarify the direction of the reorganization. Before these steps are presented, it should be stated that in all that has been done an attempt has been made to *evolve* the reorganization from the thinking of the group and not to superimpose a plan. For this reason progress has been real but slow. In all probability the curriculum in the primary grades in the nine schools having primary divisions is not at the present writing radically different from that to be found in the primary grades of the eighty or more other elementary schools. Now that something like a basic understanding has been developed, progress in reorganization will be more rapid. The steps which have been taken are as follows:

Teachers' meetings and conferences have been held to discuss the meaning of "child growth," curricular activities which will contribute to it, and observable school evidence of child development. A recognized authority in child welfare and in child psychology has consented to act as consultant in the work of defining child growth and in outlining observation techniques. Teachers' meetings, conferences, and committee work on these matters are still in progress.

One of the most difficult things to accomplish in curricular adjustments is that of securing a changed attitude on the part of the teacher toward the time for beginning reading instruction. Each first-grade teacher is supplied with information, reading-readiness scores, or with intelligence-test results to acquaint her with those children who show little or no readiness to begin reading. First-grade teachers have long considered it their particular duty to teach every first-grade child to read, and it is extremely difficult for some of these teachers to accept a curriculum in which reading is taught only to those children who have a reasonable chance of success. As teacher-training activities are continued and as the curriculum becomes better adjusted, this difficulty will undoubtedly disappear. At the present time it is generally true that the individual child is initiated into reading when he is ready to learn to read. This means that some children are not taught to read until their third year in school, or until second grade.

When pupils are once introduced to the reading process, the utmost attention is given to maintaining interest, to insuring success, and to establishing desirable habits. Since there is no reliable evidence that any one method is superior to others in teaching reading, teachers are asked to follow the advice of Lawrence[1] in selecting for a particular child what seems to be the advantageous features of

[1] Arta Frances Lawrence, "A Study of First-Grade Reading Vocabulary." Unpublished Master's thesis, Stanford University.

several methods. Curriculum activities for pre-reading groups whether they are in the first year (kindergarten) or in the second year (first grade) are related to the children's needs and interests. A report by Waters[1] in kindergarten activities furnished suggestions for one of the techniques used in discovering children's needs and interests. . . . .

In selecting curricular activities several tendencies have been encouraged: first, to disregard subject-matter boundaries; second, to make greater use of community contacts in substituting direct experiences for vicarious ones; and, third, to include in the curriculum many activities that will bring the children of different years or grades together irrespective of grade level.

Activities which provide direct experiences with civic and social affairs may aid in establishing broader and deeper conceptual background and are therefore particularly desirable.

A number of changes in traditional practices have been suggested and put into practice. Number work or arithmetic has become informal. It is highly probable that systematic instruction in arithmetic will be postponed for the majority of children until Grade III B. . . . .

The children in the primary divisions are initiated into handwriting through script print rather than through the cursive type of writing. The transition to cursive writing will not be made by any child until he has gained a fair control over the reading process. There seems to be some evidence that the exclusive use of the print form of writing in the primary grades may aid in reading.[2]

Medical Care in the Teacher's Budget

For a number of years the Julius Rosenwald Fund has been making a comprehensive investigation of the economic facts in medical service and of the possibilities of finding more effective ways of distributing the burden of medical care. The following statement, prepared by C. Rufus Rorem of the Rosenwald Fund, should be of special interest to teachers.

Teachers who have been forced to pay large or unpredicted costs of medical care will be interested to know that in various parts of the United States the procedure of "group-budgeting" has been adopted to assure hospital or medical services. Group-budgeting is a plan in which a number of persons make equal and regular payments into a common fund, which is used for the payment of necessary professional services to the subscribers.

The most widely known group-budgeting agreement for teachers is that in effect between the School Teachers' Association in Dallas, Texas, and the Baylor University Hospital. Dr. J. F. Kimball, vice-president of Baylor Univer-

[1] Doris Waters, "Pre-reading Experience," *Education*, LIV (January, 1934), 308–12.

[2] Arthur I. Gates and Helen Brown, "Experimental Comparisons of Print-Script and Cursive Writing," *Journal of Educational Research*, XX (June, 1929), 1–4.

sity, was at one time superintendent of schools in Dallas. Approximately three years ago he invited the membership of the association to subscribe for hospital services at the rate of six dollars a year, payable monthly. This fee was later raised to eight dollars a year, and at the present time approximately fifteen hundred school teachers are enrolled for services with the Baylor University Hospital. Several hundred are enrolled for similar benefits at the Methodist Hospital and the St. Paul's Hospital in the same city.

Group-budgeting plans have also been formed, either independently of physicians' services or in conjunction with them, in Dallas, Houston, New Orleans, Newark, Kansas City, Denver, Pueblo, Sacramento, and Portland, to mention only a few other cities in which these plans are most firmly established.

Where the medical-service benefits include only hospital care, the subscriber is usually protected against the need for hospitalization up to a maximum of twenty-one days in any one year, including bed, board, and floor nursing, as well as the use of the operating room, laboratory, routine medicine, and supplies. The fees usually range from six to twelve dollars a year depending on whether or not certain types of special services, such as X-rays, are included without extra charge.

There is an active movement on the part of several school and college faculties to arrange for the purchase of complete medical service on a group-budgeting basis, with plans to include members of the teachers' families.

Group-budgeting plans for hospital service are being officially encouraged by the American Hospital Association. Such plans do not include the services of a physician or a surgeon. Patients are hospitalized on the recommendation of their private physicians, and the patient may have free choice of doctor as well as free choice of hospital among the hospitals participating in the group-budgeting agreement. Group-budgeting by the teaching staff in tax-supported school systems has been officially encouraged by some boards of education. Such plans not only give security to the teacher and avoid the need of charity but also may relieve the taxpayer from financing such medical services in case of emergency.

Additional detailed information concerning the progress of group-budgeting for medical care may be secured from the Julius Rosenwald Fund, Chicago.

PUPIL FAILURE AS AN ADMINISTRATIVE DEVICE IN ELEMENTARY EDUCATION

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The history of the administration of elementary education in this country is replete with citations indicating the existence from Colonial days to the present of a practice known as "pupil failure" or the "repetition of grades." Much of the professional literature dealing with pupil failures in the elementary school is concerned with the tabulation of data showing the percentages of failure by grades and by subjects. Although much emphasis has been placed on methods for reducing the number of failures, the impression obtained from reading the literature on elementary-school administration is that the authors assume that non-promotion must prevail as an accepted practice (4, 20).[1] The general acceptance of school failure as an essential administrative device is further illustrated by the eagerness with which administrators seek a comparison of their own percentages of non-promotion with those of other cities and by the long-felt need for norms on acceleration, retardation, and the age-grade status of children.[2] Perhaps past attitudes regarding school failure are justifiable and should be maintained, but, before such a conclusion is reached, it would seem desirable to examine carefully various aspects of failure in order that the educational values of the practice may be ascertained.

CAUSES OF FAILURE

Presumably the causes of failure might be sought from at least two sources, namely, the statements of children as to why they think they failed and the statements of teachers and administrators. If children are asked why they were not promoted, the most common

[1] The numbers in parentheses refer to the numbered bibliography appearing at the end of this article.

[2] Partially in response to this need, Mort and Featherstone prepared their mimeographed bulletin on entrance and promotion practices (16).

response is "that they didn't work hard enough" or "that they were sick or absent." Perhaps it is begging the question to attempt to discover from non-promoted children the reasons why they failed, since in most instances the child is made to feel that he himself is responsible for the failure. Borgeson found that approximately 75 per cent of all the causes of failure given by pupils are those submitted on the assumption that the pupils themselves are primarily responsible (2). Frequently teachers and administrators, in an attempt to justify themselves and the position of the school, create an atmosphere in which the child and his parents are made to feel that the responsibility for the child's failure lies at their door. No doubt there are instances in which lack of application on the part of the child or unfavorable home conditions constitute legitimate cause for lack of progress in school, but a child's feeling that he "didn't work hard enough" may simply imply that the standards of the school were not adjusted to his ability or that insufficient motivation existed.

The causes of failure from the point of view of teachers and administrators are numerous. A report (6) from 493 superintendents of schools from all parts of the country and from all sizes of cities shows that reading and arithmetic are the subjects in which the largest number of failures occur. Of the sixteen reasons given for failure in reading, the three most frequently named (each reported by more than one hundred superintendents) are mental immaturity or inability, irregular attendance, and physical and social immaturity at time of entrance. Only 108 superintendents gave reasons for failure in arithmetic. Poor teaching techniques, lack of mental ability on the part of pupils, and lack of interest which results in lack of application are the three most frequently posited of the sixteen reasons named for failure in arithmetic.

Heck has classified the causes of failure into four categories (10). The first group is entitled "Failure due to the child" and includes such items as lack of mental ability and incurable physical defects. The second rubric, "Failure due to the teacher," embraces such factors as poor methods of teaching, inadequate motivation of pupils, and unjustifiably high standards. "Failure due to the school" covers such items as large classes, improper control of the social and

athletic activities of the school, and inadequate attendance service. In the fourth group were placed items relating to "Failure due to out-of-school environment," which includes factors within the neighborhood and the home and the attitude of parents.

A more recent study of the causes of failure as given by teachers is that by Adams (1). Forty-one elementary teachers were requested to submit to the superintendent's office written statements giving explanation and justification for the various percentages of failure in their classes for the first semester of 1929–30. For convenience, the data as analyzed by Adams have been assembled in Table I. The first group consists of reasons over which teachers have little control. Reasons of this sort were mentioned ninety-three times and constitute approximately one-third of the total reported. Even though teachers may have little control over the factors in Group I, the school is not entirely without control, especially with reference to such items as absence, certain physical handicaps, class size, and delayed examinations.

The second large group of reasons, constituting about 40 per cent of the total listed, relate to standards of work and represent factors over which teachers have a large measure of control. The third group relates to the interest of children and might be considered an extension of the second group of reasons, since the responsibility for the development of interest and proper attitudes on the part of children rests largely with the teachers. In the last analysis, it is evident that more than half the reports of these teachers relate to items which are within the control of teachers and which modern teaching would recognize and adjust so that the difficulties would not become the causes of failure. The majority of the remaining items are without the control of pupils. Thus, there seems to be little justification for inflicting school failure on pupils on the basis of most of the factors listed by these forty-one teachers (see also 11).

An investigation made by the staff of the Guidance Department of the Wilkes-Barre city schools (14) suggests that language difficulties, non-attendance, personality traits, methods of group instruction, the education of parents, the language spoken at home, the number of children in the family, and the financial security of the parents are items most frequently associated with children who fail

in school. In case a favorable combination of these factors is lacking, the child is doomed to failure. Doubtless the items named are not necessarily causes of failure but are conditions associated with chil-

TABLE I

REASONS GIVEN BY FORTY-ONE TEACHERS FOR FAILING PUPILS*

Reason Given by Teachers	Number of Teachers Mentioning	Frequency with Which Mentioned
I. Reasons for failure over which teachers have little control:		
Absence	21	36
Excessive moving from school to school	7	22
Poor home conditions	6	11
Physical defects in sight and hearing	6	8
Nervous pupils	2	4
Too many pupils	3	3
Delayed examinations	2	3
Inadequate diets	2	2
Temperamental pupils	2	2
Poor health due to adenoids	1	1
Epileptic child	1	1
Total	.....	93
II. Reasons for failure which relate to standards of work:		
Work too difficult for pupils	17	47
Mentally deficient in teachers' opinions	16	23
Work below teachers' subjective standards	16	19
Reading ability low in teachers' opinions	6	15
Work below teachers' objective standards	2	3
Reading ability below standardized norms	1	2
Failure an excuse for reclassification	1	1
Total	.....	110
III. Reasons for failure relating to the interest of children:		
Pupils lack interest	14	27
Pupils are careless and indifferent	10	14
Total	.....	41
Grand total	.....	244

*Adapted from W. L. Adams (1).

dren who fail in school. Careful scrutiny will show that most of the items named are among those usually found to exist among children of low intelligence. In so far as this statement is correct, the several items named as causes of failure may be resolved into one, namely, low mentality.

A recent study by Hayes (9) tends to remove the foundation from other current beliefs regarding the causes of failure. Three hundred and six pupils in Grades II–VI, inclusive, who had repeated a grade some time during their school career were studied with reference to chronological age and mental age at time of entrance to Grade I, kindergarten attendance, physical defects, and transfer from other cities. The pupils who had failed were different from those who had not failed only with respect to mental age at the time of entrance.

THE VALUES OF FAILURE

The exact functions or values of failure in the elementary grades have never been ascertained. There is practically no literature on the value of failure. This lack may result from the fact that little thought has been given to the benefits accruing from non-promotion. In general, teachers and administrators have assumed, perhaps as a result of tradition, that non-promotion is an unavoidable evil in school administration and thus have spent their time justifying it, finding adequate excuses or reasons for failing pupils, and putting on drives to reduce the percentage of failure. Some educational workers believe firmly that failure should be reduced to a minimum, but they also believe that the threat of failure must be retained to assure maximum application on the part of pupils. Perhaps everyone who bears some responsibility for the failure recorded at the end of each school term believes that certain advantages will accrue for the pupil if he repeats the grade.

The values which are assumed to accrue from repeating a grade may be implied in part from the causes or reasons given for failing pupils because frequently these reasons for failure refer to conditions which it is hoped will be corrected by requiring the pupil to repeat the grade. Such items, for example, as "lack of interest," "laziness," and "carelessness" suggest that non-promotion is to give a lesson to the child as a method of making him come to time or to constitute a punishment for his past indifference as a means of bringing him to change his attitude. Such reasons as "mental immaturity," "inadequate academic abilities," or "work too difficult" suggest a hope that some kind of growth will occur during the succeeding term so that the curriculum prescribed for the grade will not be too difficult

for the child. It is not certain whether these anticipated benefits accrue for the child and, if so, whether they result in greater quantity from repetition of a grade than from exposure to the new work of the succeeding grade. It must be remembered that research in this field is conspicuously lacking and that the experience of teachers with occasional individual cases constitutes the major basis for these hopeful anticipations.

As one phase of an investigation of promotion policies, which has been reported elsewhere (18), the writer had occasion to interview

TABLE II

FUNCTIONS OR VALUES OF FAILURE IN ELEMENTARY SCHOOLS AS VIEWED BY THIRTY-EIGHT PRINCIPALS

VALUE OF FAILURE	PRINCIPALS MENTIONING	
	Number	Per Cent
Assures mastery of subject matter	13	34
Disciplines the lazy child	11	29
No values	11	29
Adjusts the immature child	9	24
Helps to retrieve the losses due to absence	4	11
Gives dull child more time	3	8
Maintains the morale or standard	1	3

thirty-eight principals of elementary schools regarding their opinions of the values of failure. The opinions of the principals have been summarized in Table II. Twenty-nine per cent of the principals believe that no desirable values can result from failure. One person expressed the thought that failure in the elementary grades is a tragedy. Others named a variety of values, the actual existence of many of which is doubtful, whereas most of the other items cannot justify the practice of denying progress to many pupils.

So far the discussion has dealt with the opinions of teachers, administrators, and pupils. A review of related research may cast further light on the problem. In one investigation, conducted in Springfield and Decatur, Illinois, under the direction of H. T. McKinney, teachers were requested at the close of the first semester of 1918–19 to make out the usual list of promoted and non-promoted pupils (5). After these lists were in the hands of the superintendent,

the teachers were informed that all children were to be placed in the next higher grade. Pupils not originally recommended for promotion were to be given a probationary period of six weeks, and during that time every effort was to be made by the teachers to assist the probationary pupils to make good their promotions. As the responsibility for the success of the conditionally promoted pupils was placed on the *receiving* teachers, all teachers were encouraged to use a variety of remedial devices to aid the pupil to maintain his status in the new grade. At the end of the probationary period it was found that 75 per cent of the conditionally promoted pupils could be retained in the higher grade. At the close of the school year it was found that more than half of the pupils promoted on trial in February were recommended unconditionally for promotions in June. Although no objective methods were used to measure the educational growth of the children, the study suggests the feasibility and effectiveness of diagnostic and remedial measures as a substitute for failure. Apparently, remedial teaching produced the same benefits that it was hoped would be achieved through grade repetition. If appropriate diagnostic and remedial methods during one semester can reduce the failures by one-half, the reader may speculate on the effects of systematic attention to pupil difficulties during the entire period of elementary education.

A study (13) conducted in Long Beach, California, in 1927–28 gives more direct information with regard to the value of failure in terms of the educational growth of children. One week before the close of the first semester the names of all pupils who would be asked to repeat the grade were reported, together with their grade placement, chronological age, mental age, intelligence quotient, and sex. The 141 pupils thus reported were assigned to two equal groups on the basis of the data assembled. The members of one group were promoted on trial, while those of the other group were retained in the same grade another term. An index of the educational growth of the children was obtained by use of the Stanford Achievement Test in Grades IV–VI, inclusive, and the Haggerty Reading Test and the Cleveland Survey Test in Arithmetic in Grades II A to III A, inclusive. All tests were given at the beginning and at the end of the semester. The results of the study caused the authors to conclude

that the trial-promotion group showed greater progress during the succeeding term than did the repeating group and that schools apparently are not justified in requiring a child of normal ability to repeat, at least not in Grades IV–VI.

During the school year 1932–33 I. C. Nicholas conducted in Rockford, Illinois, a study similar to the Long Beach study. Approximately three hundred elementary-school pupils were involved. The investigation has not been completely summarized, but a preliminary analysis of the data suggests that the educational growth of children is enhanced more by exposure to the work of the next higher grade than by repetition of the same grade. Hence, two experimental studies in which objective measures were used indicate that school failure is not so valuable in promoting the educational growth of children, as measured by the Stanford Achievement Test, as is promotion to the new grade. If these results can be corroborated by further research, the time ought not be far distant when pupils and teachers may be freed from the harassing influences of failure.

THE RESULTS OF FAILURE

Indirect inference regarding the results of failure may be made from the preceding discussion. Repetition of a grade produces educational growth, at least for most children, and, in so far as it does produce growth, the hope of teachers that repeating the grade will reduce or eliminate immaturity and inadequacies in academic abilities is borne out. Data show, however, that development during the second term in a grade is less than the growth which occurs if children are exposed to the new work of a higher grade. Of course, a certain amount of mental and academic growth would take place during total non-attendance at school. Whether this advance would be equal to the growth resulting from the repetition of a grade is not known. Whether children who are failed because of "lack of interest," "indifference," "laziness," and the like really overcome these antischool attitudes is not known. Perhaps some children do, but doubtless for many of them these undesirable reactions to school work are enhanced by failure.

The literature on the results of pupil failure is limited. An analysis of the articles dealing with failure listed in the *Education Index*

for the past four years revealed not a single objective study which had attempted to ascertain the results of non-promotion in terms of the welfare of groups of children. Individual case studies have been reported, but such studies usually represent the exceptional cases which come to the attention of teachers and school psychologists. Indirect implications regarding the effects of failure may be obtained from certain psychological investigations, some of which will now be reviewed.

Praise and reproof are used extensively as means of motivation, and research has shown that praise is more effective than reproof (7). Inferior children particularly are more responsive to praise than to reproof. As a rule, it is the below-average children who constitute the failure group. To most children non-promotion represents a sort of reproof, whereas promotion to the next grade is greeted with joy and is looked on as a form of reward. Consequently, failure, as a means for encouraging better work, is applied to the children who respond least to reproof as an incentive and who might respond much more effectively to promotion. If the line of reasoning here followed is sound, it seems that teachers who fail pupils in order to secure greater interest and greater application, which might be expected to result in greater educational growth, are using the wrong device.

The results of failure may also be analyzed from the point of view of pupil maladjustment. The causes of mental maladjustment are probably not exactly the same in any two individuals, but there are certain factors which, when operating under similar conditions, produce about the same results. Among the partial list of causes of mental maladjustment given by Jordan, is a statement pointing out that "hostility, ridicule, or indifference, real or imagined, of adults or associates, leads to a feeling of *inferiority* and a thwarting of impulses and desires" (12: 407). Failure in school with the attendant ridicule of the other children is frequently a major cause in the creation of problem cases. There are perhaps few forces more potent in the life of a child than the opinions and the attitudes of his peers. Non-promotion, and especially several successive failures, places a child in a class group in which he may feel criticism from two sources, namely, the younger children in his present class and the children of his own age who are now several grades ahead of him. The social

maladjustment which results is frequently sufficient to cause the development of all kinds of defense mechanisms and undesirable or antisocial attitudes and mannerisms. Case studies in which school failure has been one of the major causes of maladjustment are sufficiently numerous to justify the acceptance of these comments as more than mere speculation (21).

Further evidence of the possible causative relation between undesirable behavior and retardation is suggested in a study made by Haggerty (8). An analysis of the incidence of undesirable behavior appearing in eight hundred elementary-school children showed definitely that a much larger amount of undesirable behavior was recorded for over-age and retarded pupils than for normal or under-age children. Such scientific evidence as that cited helps to cast further doubt on the desirability of school failure.

The analyses which have been made point to the unquestioned conclusion that "school failure," that is, the repetition of grades, should be abandoned as an administrative device. As the writer has pointed out in an earlier article (17), the responsibility for pupil failure falls on school administration, the term "school administration" being used in a general sense to mean all phases of organization and administration. Most of the reasons given by teachers and administrators for inflicting non-promotion on children are merely hypothetical breastworks behind which the educators hide while they are "passing the buck" to the unsuspecting children. Perhaps the one argument favoring the repetition of a grade by a child is that his mental and academic abilities are insufficiently developed to enable him to succeed with the more difficult work of the advanced grade. Obviously, that difficulty will be at least partially corrected if the child waits a term before entering the higher grade. The educational age of a child will increase during the time that he is repeating his grade, but research indicates that his educational growth will be greater if during that same interval of time he is exposed to the work of the new grade. In other words, the level of his educational development will be higher at the end of the term if he is promoted, in spite of the fact that the new work may be difficult for him. Since the function of the school is to promote the maximum educational development of children, there is little room for failure.

Mort has stated that among the many reasons given for non-promotion there are but two that can be justified, namely, the inability of a pupil to master the fundamentals of the succeeding grade and the losing of something highly valuable which cannot be secured in the higher grade (15). Mort further points out that careful analysis will indicate that non-promotion for either of these reasons should rarely occur. Both of these arguments or reasons have been adequately answered in the preceding paragraph. One might add that there is nothing particularly sacred about the allocation of a given unit of content to a specific grade and that the grade in which a certain unit is taught is not particularly significant. The mental development of the child is a more important consideration. If one really takes seriously the principle of adapting instruction to individual differences—a doctrine which professional educators have preached for more than two decades—the argument that "the work of the grade is too difficult for the child" appears ridiculous. If in all grades pupils are carefully studied, if adequate diagnoses are made, and if methods and materials are properly adapted to the abilities of pupils, it may be assumed that practically all children will achieve according to their ability. No one can legitimately expect greater achievement. The continuous use of diagnostic measures will enable the teacher to keep the child informed and encouraged about the progress he is making in various phases of school work. Researches by Ross, Book and Norvell, and others cited by Garrison and Garrison (7) have shown that knowledge of progress is a valuable motivating factor.

A PROPOSED PROMOTION PLAN

If non-promotion is eliminated except in cases in which a child has been unduly absent or ill or is decidedly immature chronologically, mentally, and socially, other phases of elementary-school organization and administration will be affected. Some of the problems which arise, particularly with reference to promotions, have been discussed by the writer elsewhere (19). It may be desirable to report here that portion of the previous article which dealt with a proposed promotion plan.

Several writers have suggested that children be classified on the basis of social maturity. If such a classification policy is to be car-

ried out consistently, it is essential that all children be promoted regularly and periodically in order that each child will be placed at all times in class groups which are relatively homogeneous from the point of view of social maturity. Except for unusual cases or unusual circumstances, this policy calls for promotion of 100 per cent throughout the elementary school. To make this program more feasible, the writer recommends that the term "school grade" be abandoned and that children be designated as spending their "first year" (kindergarten), "second year," or "seventh year" in the elementary school. After a child has spent seven years in the elementary school (the period now covered by the kindergarten and Grades I–VI) and has reached the age of twelve years or twelve years and six months, he will be transferred to the secondary school. In this way, pupil progress will be regular and continuous, and children will not be denied the broadening and enriching influences of the junior high school because of failure and retardation in the elementary school. It will be necessary for secondary schools to modify their programs to enable them to provide adequately for *all* children who have completed their sojourn in the elementary schools. The secondary unit will then achieve democratic secondary education to a larger degree than it now does.

The suggested promotion plan has been formulated in the firm belief that one of the major purposes of the elementary school is to provide a wholesome environment in which children may grow up. The aim at all times should be to provide class groups in which children of about the same age and maturity will participate extensively and in a wholesome fashion in activities through which it is hoped the aims of elementary education will be attained. No child should at any time be placed in a situation which will cause him to develop defense mechanisms or undesirable character and personality traits. This concept of promotion does not preclude ability grouping within each of the social groups.

Such data as have been assembled suggest that failure in school serves no useful values. In fact, the evidence indicates that the educational growth of children is less when they repeat grades than when they are promoted to new work. To argue that the threat of failure is essential to obtain maximum application on the part of children is an acknowledgment of inefficient teaching and inadequate

understanding of children. If children are properly motivated, they will work to capacity. Achievement below capacity usually suggests maladjustment of some sort, which should become a challenge to the teacher. If instruction is really adapted to individual differences in children, school failure is an anachronism. A promotion rate of 100 per cent is not likely to produce class groups in which the variations in academic achievements are larger than those found in classes as now organized. This contention is supported by Caswell's study (3). Hence, the problems and difficulties of teaching will not be increased materially. Standardized mental and achievement tests of all types will find extensive use as teaching aids, enabling the teacher to ascertain pupil abilities, pupil attainments, pupil difficulties, and pupil deficiencies in an effort to provide for each child that education which is best suited to his interests and abilities. School marks as now conceived may well be discarded, and ratings of "satisfactory" or "unsatisfactory," depending on whether a child is achieving according to his ability, be substituted. An unsatisfactory report will indicate maladjustment of some sort and will suggest the need for co-operation between the home and the school in an endeavor to secure again a well-adjusted individual. The satisfactory development of desirable personality and character traits, as well as academic knowledge and skills, will be the concern of the teacher. Under such a régime of elementary-school administration there will be little occasion for pupil failure and non-promotion.

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AN EXPERIMENT WITH A ONE-FIGURE DIVISOR IN SHORT AND LONG DIVISION. II

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The data considered in the first article[1] of this series were taken from the scores made on the entire test. In this article consideration will be given to the results of each part of the test. The reader should bear in mind that Part I of the test was composed of the easy division examples and Part II of the difficult examples.

TABLE IV

MEAN NUMBER OF ERRORS AND MEAN TIME IN FIFTEEN-SECOND INTERVALS MADE BY SUBJECTS IN GRADES V–XV ON PART I (EASY EXAMPLES) OF FORMS A AND B OF TEST IN DIVISION

GRADE	FORM A (SHORT-DIVISION FORM)		FORM B (LONG-DIVISION FORM)	
	Number of Errors	Time in Fifteen-Second Intervals	Number of Errors	Time in Fifteen-Second Intervals
V	8.80±0.470	33.00±1.070	9.36±0.571	48.04±1.230
VI	6.82±0.426	25.52±0.855	7.57±0.498	34.63±1.020
VII	6.00±0.348	22.29±0.501	4.81±0.331	30.00±0.611
VIII	4.33±0.311	19.11±0.488	4.04±0.288	26.79±0.531
IX	4.00±0.208	15.60±0.280	2.50±0.162	21.78±0.288
X	3.28±0.312	15.22±0.283	2.22±0.152	21.45±0.306
XI	2.40±0.180	13.46±0.317	1.47±0.105	17.00±0.262
XII	3.41±0.236	11.90±0.075	2.40±0.155	16.22±0.236
XIII	3.12±0.193	12.92±0.219	2.06±0.168	17.31±0.241
XIV	2.57±0.189	13.57±0.258	1.66±0.130	16.82±0.253
XV	2.96±0.233	12.02±0.260	1.40±0.121	17.36±0.233

Table IV shows that more errors were made on the short-division form than on the long-division form except in Grades V and VI. In all grades the short-division form had the advantage in time.

In order to determine whether the difference between the means

[1] Foster E. Grossnickle, "An Experiment with a One-Figure Divisor in Short and Long Division. I," *Elementary School Journal*, XXXIV (March, 1934), 496–506.

was significant, the writer applied the same technique to this difference as was used in the case of the scores on the entire test. The differences of the means and the probable errors of these differences are given in Table V. When the difference between two means is at least four times its probable error, it can be stated with practical certainty that the difference between the true means will be more

TABLE V

COMPARISON OF DIFFERENCES IN MEAN NUMBER OF ERRORS AND MEAN SCORES ON TIME ON PART I (EASY EXAMPLES) OF FORMS A AND B OF TEST IN DIVISION

GRADE	NUMBERS OF ERRORS			SCORES ON TIME		
	Difference in Means*	Probable Error of Difference	Ratio of Difference to Its Probable Error	Difference in Means*	Probable Error of Difference	Ratio of Difference to Its Probable Error
V	−0.56	0.740	0.76†	−15.04	1.630	9.23
VI	−0.75	0.655	1.15†	− 9.11	1.331	6.84
VII	+1.19	0.480	2.48†	− 7.71	0.790	9.76
VIII	+0.29	0.424	0.68†	− 7.68	0.721	10.65
IX	+1.50	0.264	5.68	− 6.18	0.402	15.37
X	+1.06	0.347	3.05†	− 6.23	0.417	14.94
XI	+0.93	0.208	4.47	− 3.54	0.411	8.61
XII	+1.01	0.282	3.58†	− 4.32	0.248	17.42
XIII	+1.06	0.256	4.14	− 4.39	0.326	13.47
XIV	+0.91	0.229	3.97†	− 3.25	0.362	8.98
XV	+1.56	0.263	5.93	− 5.34	0.349	15.30

* The differences preceded by a plus sign favor the long-division form; those preceded by a minus sign, the short-division form.

† Not a significant difference.

than zero. The table shows that in the case of the easy division examples the differences in time in favor of the short-division form were significant. As for accuracy, the means favored the long-division form, although the differences were significant in only four cases. However, in all but two cases the trend was favorable to the long-division form. If a significant difference were interpreted to be one which is three instead of four times its probable error, then there would be significant differences in accuracy favorable to the long-division form in seven of the eleven grades. When the difference between two means is only three times its probable error, the chances are 97.9 out of 100 that the difference of the true means will be

greater than zero. Under such conditions the chances that the difference of the means will be zero or less are extremely limited.[1] In Grades V and VI there was no true difference in the number of errors for either form, but the chance difference was favorable to the short-division form. An explanation will be given later to show why these two groups were unusual in this respect.

Part II of the test was composed of the difficult division examples. In this part of the test each higher-decade subtraction bridged the

TABLE VI

MEAN NUMBER OF ERRORS AND MEAN TIME IN FIFTEEN-SECOND INTERVALS MADE BY SUBJECTS IN GRADES V–XV ON PART II (DIFFICULT EXAMPLES) OF FORMS A AND B OF TEST IN DIVISION

Grade	Form A (Short-Division Form)		Form B (Long-Division Form)	
	Number of Errors	Time in Fifteen-Second Intervals	Number of Errors	Time in Fifteen-Second Intervals
V	13.10±0.670	57.64±1.540	8.68±0.583	67.98±1.800
VI	11.46±0.525	44.97±1.139	7.37±0.466	52.08±1.172
VII	10.36±0.497	40.11±0.791	4.59±0.288	43.12±0.830
VIII	7.53±0.465	36.00±0.816	3.90±0.295	37.96±0.772
IX	7.73±0.352	30.24±0.534	4.67±0.298	32.01±0.481
X	7.73±0.464	28.21±0.540	4.67±0.360	31.03±0.579
XI	5.43±0.287	24.00±0.388	2.68±0.326	24.29±0.351
XII	8.41±0.472	22.66±0.421	3.81±0.260	22.86±0.417
XIII	6.89±0.378	26.38±0.438	4.07±0.289	24.89±0.363
XIV	6.73±0.306	25.84±0.495	2.18±0.168	24.63±0.498
XV	6.88±0.344	25.41±0.515	2.54±0.195	25.64±0.460

decade. Table VI shows that the mean number of errors made on Form A was consistently larger than the number made on Form B. The mean scores on time for the two forms differed only slightly, although there was some advantage for the short-division form. The comparisons of the differences with their probable errors for Part II are given in Table VII. This table shows conclusively that the long-division form produced much greater accuracy than the short-division form. In every grade there was a very significant difference in accuracy which favored the long form. With regard to time, there was practically no difference between the two forms.

[1] Henry E. Garrett, *Statistics in Psychology and Education*, p. 135. New York: Longmans, Green & Co., 1926.

In Grades V and VI there were significant differences in time in favor of the short form, but in all the other grades the differences were chance differences. Since the scores on time on the two forms showed insignificant differences and since the long form yielded much greater accuracy, the conclusion is that the long-division form should be used for difficult division examples with one-figure divisors.

TABLE VII

COMPARISON OF DIFFERENCES IN MEAN NUMBER OF ERRORS AND MEAN SCORES ON TIME ON PART II (DIFFICULT EXAMPLES) OF FORMS A AND B OF TEST IN DIVISION

GRADE	NUMBER OF ERRORS			SCORES ON TIME		
	Difference in Means*	Probable Error of Difference	Ratio of Difference to Its Probable Error	Difference in Means*	Probable Error of Difference	Ratio of Difference to Its Probable Error
V	+4.42	0.888	4.98	−10.34	2.370	4.36
VI	+4.09	0.702	5.83	− 7.11	1.634	4.35
VII	+5.77	0.574	10.05	− 3.01	1.147	2.62†
VIII	+3.63	0.551	6.59	− 1.96	1.123	1.75†
IX	+3.06	0.461	6.64	− 1.77	0.719	2.46†
X	+3.06	0.587	5.21	− 2.82	0.792	3.56†
XI	+2.75	0.434	6.34	− 0.29	0.523	0.55†
XII	+4.60	0.539	8.53	− 0.20	0.593	0.34†
XIII	+2.82	0.476	5.92	+ 1.49	0.569	2.62†
XIV	+4.55	0.349	13.04	+ 1.21	0.702	1.72†
XV	+4.34	0.395	10.99	− 0.23	0.691	0.33†

* The differences preceded by a plus sign favor the long-division form; those preceded by a minus sign, the short-division form.

† Not a significant difference.

Table II showed that a significant difference in accuracy favorable to the long-division form was found in every grade except Grades V and VI. In these two grades the differences in accuracy favoring the long-division form were only chance differences. The data given for the long-division form in Tables IV and VI show that in Grades V and VI more errors were made on Part I than on Part II of the test. In these two grades also the number of errors made on Part I was greater when the long-division form was used than when the short-division form was used. Only in these two grades was greater accuracy achieved on the short form than on the

long form. These irregularities can be explained by the fact that the pupils in Grades V and VI were not adjusted to dividing in the long-division form by a one-figure divisor. It must be remembered that none of the subjects used in this study had ever been taught to divide in the long form by a one-digit divisor. Since the pupils in Grades V and VI could not readily transfer from their daily class usage of the short-division form to the long-division form required in this test, the accuracy of the scores on Form B was impaired. To the writer the lack of familiarity with the method is a very plausible explanation of the inconsistency in accuracy shown in these two grades. After practicing on Part I of the test, the pupils became familiar with the long-division procedure, and the scores made on Part II by these two grades were somewhat more consistent with the scores made by the other grades than were the scores on Part I. If in Grades V and VI a short practice period with the use of the long-division form for a one-figure divisor had been given before the test, there is every reason to suppose that the difference in accuracy favoring the long-division form would have been a significant difference.

Tables I to VII show that for accuracy the long-division form was superior both in the case of easy and difficult division facts. From the standpoint of time, the short-division form was superior to the long-division form except in difficult division examples. With difficult examples there were no significant differences in the time consumed for solving examples by the two forms except in Grades V and VI (the inconsistency of the scores in these two grades has been explained in the preceding paragraph).

A factor which may affect a pupil's score on the short-division form is his mental ability. Olander and Sharp[1] concluded that it may be advisable to teach the short-division form to the brighter pupils. It was not possible to get mental ratings for all the subjects who took the test in the present study, but mental ratings were obtained for the students from the normal school at Jersey City and for a number of the pupils in Grade VIII.

The students at the normal school were given the Thurstone and

[1] Herbert T. Olander and E. Preston Sharp, "Long Division versus Short Division," *Journal of Educational Research*, XXVI (September, 1932), 11.

Thurstone Psychological Examination for High-School Graduates and College Freshmen at the time of their entrance to school. The median score on this examination was 146.0 for the group using the short-division form and 148.0 for the group using the long-division form. According to the norms given for the 1930 edition of the Thurstone and Thurstone examination, a score of 146 is at the 55 percentile, and a score of 148 is at the 56 percentile.

In Grade VIII the Terman Group Test of Mental Ability, Form A, was used to secure mental ratings. The median intelligence quotient of the group that used the short-division form was 103.0;

TABLE VIII

MEAN SCORES ON DIVISION TEST MADE BY SUBJECTS IN NORMAL SCHOOL AND GRADE VIII RANKED ACCORDING TO SCORES ON MENTAL TESTS

Rank on Mental Test	Form A (Short-Division Form)			Form B (Long-Division Form)		
	Number of Cases	Number of Errors	Time in Fifteen-Second Intervals	Number of Cases	Number of Errors	Time in Fifteen-Second Intervals
Normal school:						
Lower half....	74	8.84±0.408	40.87±0.752	71	4.41±0.377	42.91±0.811
Upper half....	74	9.16±0.510	35.31±0.749	71	3.99±0.362	39.73±0.691
Grade VIII:						
Lower half....	37	12.16±1.200	53.95±1.786	33	6.95±0.872	59.37±1.770
Upper half....	37	8.45±0.830	43.65±1.330	33	5.14±0.580	57.35±1.480

the median intelligence quotient of the long-division group was 100.0.

Table VIII gives the mean scores on the division test of the subjects whose scores on the mental tests placed them in the lower and the upper halves of their grades, and a comparison of the significance of these means is given in Table IX. These two tables show that there was no significant difference in the accuracy with which the subjects at the two levels of mental ability solved division examples with one-figure divisors by either form. On the short-division form the bright groups used less time than the lower groups. For the long-division form there were only chance differences in the time scores of the two groups of mental ability. Thus, these data give no justi-

fication whatever for a generalization that bright pupils should be taught the short-division form.

It is readily seen that the long form of division is superior to the short form with respect to accuracy. The next problem is the relation between accuracy and speed. If an individual has accuracy, does he usually have speed as well? Gates states: "Speed and accuracy of reacting or of learning generally go together in the sense

TABLE IX

COMPARISON OF DIFFERENCES IN MEAN SCORES ON DIVISION MADE BY LOWER AND UPPER GROUPS WHEN RANKED ACCORDING TO SCORES ON MENTAL TESTS

	Form A (Short-Division Form)			Form B (Long-Division Form)		
	Difference in Means*	Probable Error of Difference	Ratio of Difference to Its Probable Error	Difference in Means*	Probable Error of Difference	Ratio of Difference to Its Probable Error
Normal school:						
Number of errors.	− 0.32	0.653	0.49†	+0.42	0.523	0.80†
Scores on time...	+ 5.56	1.060	5.25	+3.18	1.065	2.99†
Grade VIII:						
Number of errors.	+ 3.71	1.459	2.54†	+1.81	1.047	1.73†
Scores on time...	+10.30	2.227	4.63	+2.02	2.307	0.88†

* The differences preceded by a plus sign favor the upper group in mental ability; those preceded by a minus sign, the lower group.

† Not a significant difference.

that those who develop one readily usually develop the other readily."[1] The relation between these two traits in this investigation was determined by finding the correlation between them for both forms of the division test. The Pearson product-moment method was used to find the correlations between speed and accuracy. The results, given in Table X, show that in every grade there was some positive correlation between accuracy and speed in the case of both the short and the long forms of division. However, most of the correlations were small, and it is therefore difficult to generalize about the relation between the two traits under consideration. When the test was given, the examiners urged the subjects to work as rapidly as possi-

[1] Arthur I. Gates, *Psychology for Students of Education*, p. 283. New York: Macmillan Co., 1923.

ble but to be certain that the computations were accurate. Since accuracy is the more important of the two traits, it is doubtful whether speed should be stressed. Gates further states: "In arithmetic and in writing, accuracy or quality is likely to suffer if speed is overemphasized. When proper precautions are taken, however, the rate of performance can often be appreciably increased without sacrifice of quality or precision."[1] Therefore, the long-division form

TABLE X

CORRELATIONS BETWEEN SPEED AND ACCURACY ON FORMS A AND B OF THE ENTIRE TEST IN DIVISION

GRADE	FORM A (SHORT-DIVISION FORM)		FORM B (LONG-DIVISION FORM)	
	Number of Cases	Correlation between Speed and Accuracy	Number of Cases	Correlation between Speed and Accuracy
V	111	.695±.033	100	.483±.052
VI	109	.434±.052	102	.480±.052
VII	144	.246±.052	136	.368±.050
VIII	104	.108±.064	96	.192±.063
IX	140	.300±.052	135	.380±.050
X	101	.230±.063	102	.400±.055
XI	107	.096±.064	107	.014±.065
XII	116	.492±.047	106	.402±.054
XIII	103	.470±.051	110	.479±.049
XIV	88	.160±.076	87	.335±.064
XV	82	.240±.070	79	.238±.071

for a one-figure divisor should be taught because it enables the pupil to achieve greater accuracy than is possible by the short-division form. Then as the technique of long division becomes well established, speed in the application of this technique can be stressed. In the light of the results from this experiment, the short-division form cannot be justified by any consideration.

SUMMARY

A test in division with a one-figure divisor was given to 2,365 pupils in Grades V–XV, inclusive, to determine whether the long-division form is superior to the short-division form in accuracy and speed. The test was divided into two parts, Part I consisting of easy division examples and Part II of difficult examples. Two different

[1] *Ibid.*, p. 284.

forms of the test were administered. Form A, the short-division form, was given to 1,205 subjects; Form B, the long-division form, to 1,160 subjects. The number of errors and the time in fifteen-second intervals were recorded for each test score. The results were as follows:

1. In the case of both the easy and the difficult division examples, subjects using the long-division form divided much more accurately than did those who used the short-division form.

2. The subjects using the short-division form completed the entire test in less time than did those who used the long-division form. However, there was no significant difference in the time required to work the difficult division examples by the two different division notations. In the case of easy division examples less time was consumed by the subjects who used the short-division form.

3. The farther the grade level of the subjects tested was removed from the grade in which short division was taught, the more pronounced was the difference in favor of the long-division form.

4. Intelligence, as measured by standard tests of mental ability, had no appreciable effect on the accuracy of the subjects. In the case of the short-division form, the group superior in mental ability solved the examples in less time than did the group inferior in mental ability. In the case of the long-division form there was no significant difference in either the speed or the accuracy of the upper and the lower halves of the group ranked according to mental ability.

5. In each of the grades sampled in this study there was some positive correlation between accuracy and speed. Most of the correlations were small, and consequently an appraisal of the relation between these two traits is difficult.

CONCLUSION

The results of this study point unerringly to the conclusion that the long-division form is superior to the short-division form for a one-figure divisor. It must be remembered that in this study "the dice were loaded" in favor of the short form since all the subjects tested had been taught to use the short form, and not the long form, of division for a one-digit divisor. Furthermore, the scores on the short form were not penalized because of the use of crutches. To

state that about half of the pupils who used Form A (short-division form) wrote in the carry-number would be to give a very conservative estimate of the number who used this crutch. Even under such conditions the long-division form gave more accurate results in all types of examples than the short-division form. Therefore, the writer recommends that only one form be taught—the long-division notation.

Competent authorities who favor teaching the short-division form as a short cut have been cited. The data in this study do not warrant such a procedure. A much more practical plan is to teach the long-division form for all purposes and then depend on proficiency in the application of the technique to reduce the time necessary for its operation. In conclusion, a one-rule procedure should be adopted in instruction in division examples with one-figure divisors in which there is carrying. That procedure is the long-division form.

A STUDY OF CERTAIN TYPES OF WORK MATERIALS IN FIRST-GRADE READING

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THE PROBLEM AND THE PROCEDURE

The purpose of the experiment here described was to compare the merits of two of the outstanding types of commercial work materials for first-grade reading with respect to (1) effectiveness in increasing the pupil's reading vocabulary and (2) convenience in administration by the teacher.

The two types of work materials compared may be designated as "workbook" material and "picture-dictionary" material. The workbook material is the conventional type of seat work and consists in a book of pictures with accompanying directions for carrying out various activities, such as coloring the pictures or pasting labels beneath them. The picture-dictionary material consists in a large card containing a number of pictures with word or phrase labels printed below them. The pupil has corresponding pasteboard labels which he matches with the pictures.

In the workbook material the pupil must be shown the connection between the printed directions and the picture which he is to color or the exercise which he is to work out. The pupil must therefore be familiarized with the new vocabulary embodied in these directions before he attempts to carry on any of the activities. After he has become acquainted with the new words, it is necessary to have him read the directions orally and thoroughly discuss them. Obviously, a few pupils in the group can dispense with this procedure.

The picture-dictionary material, on the other hand, utilizes the pictures only to give the words meaning and to aid the child in learning the words. The material used is blocked out into units of twelve pictures with accompanying words and phrases. When the pupil has matched his cardboard slips containing words and phrases with the corresponding pictures and has studied them until he feels

that he knows the words, the teacher checks his card to see if the matching has been done properly. If the matching has been done correctly, the teacher checks the pupil's knowledge of the words by placing the unit card aside and using the pasteboard slips as flash cards. If the pupil recognizes all the words at sight, he is given credit for the unit; if he misses certain words, he again matches the word slips with the pictures and studies them until he can recognize them at sight. The process is the same for each unit of the material.

A class of pupils in Grade I A, just promoted from the first semester of work, was selected for the experiment. Practically all the children were handicapped by meager social backgrounds and language difficulties. Since it was proposed to use the control technique, the class was divided into two groups, each numbering eighteen pupils, as nearly equal in ability as possible. A single class was used in order that all the work of both groups would be under the direction of the same teacher. This plan eliminated perhaps the greatest disturbing factor in a controlled experiment of this type, namely, inequality in the abilities of the teachers of the groups. The time period scheduled for the experiment was twelve weeks. The experiment was started a month after the opening of the semester to allow time for the formation of teacher judgment and the administration of preliminary tests.

Four factors were utilized in grouping the pupils: (1) mental age, (2) intelligence quotient, (3) chronological age, and (4) teacher judgment. The mental ages were secured from a single administration of the advanced Detroit First-Grade Intelligence Test given at the time of grouping. The intelligence quotients were obtained by combining the intelligence quotients of this administration with those derived from an administration of the Detroit First-Grade Intelligence Test in the previous semester. The median mental ages at the time of grouping were 7.4 for the workbook group and 7.9 for the picture-dictionary group. The median composite intelligence quotients were 99.5 for the workbook group and 99.0 for the picture-dictionary group. It will be noted that there is a difference of five months in the median mental ages. Such factors as social maturity, habits of work, and home advantages were considered to compensate for this difference. The chronological ages ranged from 6.4 to 10.6

in the workbook group and from 6.6 to 10.0 in the picture-dictionary group.

Two achievement tests were administered to determine the stage of progress of the pupils in the two groups at the beginning of the experiment. The first was the Pressey First Grade Attainment Scale, Form A; the second, a word-recognition test, which all pupils promoted to Grade II in the Gladstone School must pass, consisting of 152 words basic to the work of Grade I.[1] It was decided to place the main emphasis on word recognition because this aspect of reading lends itself to preciseness and convenience in testing.

The programs of study for each group were kept as much alike as possible. Each group was allotted a daily period of thirty minutes in which to use the work materials. These periods of work were supervised by the teacher, who observed great care in giving the same amount of time and attention to each group. For example, if an interruption occurred during the period of one group, the amount of time lost was noted and a proper adjustment was made. The same basic reader was used by the two groups and was in no way related to either workbook or picture-dictionary materials. Likewise, the same supplementary-reading materials were used by the groups, and the periods for their use were equalized.

THE RESULTS

Tests were again administered at the close of the twelve-week period of experimentation. An informal vocabulary test was constructed from one hundred words common to both types of materials. All the words were contained in the Gates list[2] and were among those covered by both groups of pupils during the period of the experiment. This test was designed to determine how effectively each type of material presented new words to the pupil. The other tests utilized were the Pressey First Grade Attainment Scale, Form B, the vocabularly section of the Pressey Second Grade Attainment Scale, and the same word-recognition test which was administered at the beginning of the experiment. The results of the tests given both at the beginning and at the close of the experimental period

[1] Paul R. Pierce, "Administrative Aspects of Testing in First-Grade Reading," *Elementary School Journal*, XXXIII (October, 1932), 112–21.

[2] Arthur I. Gates, *A Reading Vocabulary for the Primary Grades*. New York: Teachers College, Columbia University, 1926.

and the gains made by each group are shown in Table I. The scores on the Pressey tests show practically no difference in the results of the two groups. In the word-recognition test the workbook group made a median gain of 7.5 words more than the picture-dictionary group. However, in the second administration of both the Pressey First Grade Attainment Scale and the word-recognition test, many pupils in each group made perfect scores; consequently, the potential gains that each group might have made were not deter-

TABLE I

MEDIAN SCORES MADE ON READING TESTS AT BEGINNING AND AT CLOSE OF EXPERIMENT BY TWO GROUPS OF PUPILS USING TWO TYPES OF WORK MATERIALS

NAME OF TEST	MEDIAN SCORE OF WORKBOOK GROUP			MEDIAN SCORE OF PICTURE-DICTIONARY GROUP		
	At Beginning	At Close	Gain	At Beginning	At Close	Gain
Pressey First Grade Attainment Scale	22.5	54.0	31.5	26.9	57.0	30.1
Pressey Second Grade Attainment Scale	.....	18.5	.....	.....	18.3	.....
First-grade word-recognition test	75.0	149.5	74.5	83.0	150.0	67.0
100 words based on materials	.....	75.5	.....	.....	85.0	.....

mined. In the test based on one hundred words common to both types of material, the pupils in the picture-dictionary group attained a median score of 9.5 more words than the workbook group. The Pressey and the word-recognition tests do not indicate any particular differences in the effectiveness of the two types of materials, but the results of the test based on words common to the materials show that in recognition of words at sight the picture-dictionary material is at least equal to, and possibly has a certain degree of superiority over, the workbook material.

The administration of a controlled experiment in a large public school presents many problems, not the least of which is irregular attendance of the pupils participating. Whenever a pupil is absent, not only his progress and that of the group is affected, but the balance essential to an effective experimental organization is disturbed. In this experiment the median number of days of attendance was 56.3 for the workbook group and 55.6 for the picture-dictionary

group. The median number of words covered was 360 for the workbook group and 238 for the picture-dictionary group. The difference of less than a day in the median attendance of the two groups during the sixty days of the experiment shows that the absences in one group tended approximately to offset those in the other. The number of words covered by the workbook group marks a point in the materials reached by practically all the members of the group. This finding supports a statement which will be made in the discussion of the clinical data, namely, that the directions and care necessary to the effective administration of these materials favor group progress rather than individual progress. The median number of words covered by the picture-dictionary group is much smaller, but the wide range (from 96 to 650) indicates a strong tendency toward individual progress of the pupils. It should be noted, however, that the phrase "words covered" does not have the same meaning for the two types of materials. In the workbook material the pupils simply covered the words as in ordinary reading procedure, while in the picture-dictionary material the pupils' mastery of each word was tested.

CLINICAL DATA

In order to secure data regarding the administration of each type of work material, the teacher systematically took notes on what appeared to be important factors in assignment of work, meeting individual needs, problems of class routine, and the like. A brief résumé of the factors thus noted is herewith presented.

The assignment of workbook materials to first-grade pupils is a more complex problem than is frequently supposed for the reason that many of the directions preceding an activity are too difficult for the child to understand. The directions either contain many unfamiliar words or are couched in words outside the child's experience. Some directions employ as many as fifteen words, half of which may be introduced for the first time. This factor makes careful assignment of each exercise very essential. It also has the disadvantage of making individual progress for each child difficult. This disadvantage is especially apparent when a child returns to class after an absence. In the workbook material, if there is no way of illustrating a word, it is difficult and frequently impossible for the child to work out the word for himself. To illustrate, if the child

encounters under the picture of a cat the sentence, "This is my cat," and has not previously mastered "this" and "my," there is nothing in the picture that will give him a clue to these words. The workbook requires careful and constant supervision. The child works out his activities with crayons—crayons being much cleaner than colored chalk—and it is impossible for him to erase. If he interprets the directions incorrectly, the incorrect work must stand and mar his book. Consequently, the teacher must make sure that the pupil understands the directions before he attempts to execute them on paper. However, the workbook material makes the pupil "reading conscious." He soon learns that, before he can use his scissors or crayon, as he delights to do, he must read.

The picture-dictionary units are usually introduced by a story about each picture. This story is necessarily both simple and brief. In the case of the word "close," for example, the picture shows a child closing a window. The story about this word may be no more than the following: "A big storm is blowing up, and mother has asked Mary to close the window."

A problem connected with the assignment of the picture-dictionary material in the case of first-grade children is centered in the fact that few children are working on the same unit at a given time, and extra attention must be spent in bringing the pupil to understand how to take up his work at the point where he left it at the close of the preceding period. For example, if he has received credit for completing Unit I at the end of the period on Monday, then he must be trained to proceed to Unit II on Tuesday without the assistance of the teacher. Once the pupil has secured the correct material, it is possible for him to start work independently. He can set his own pace, and he can resume his work after an absence without the necessity of special instruction. It should by no means be construed, however, that this material can be used as "busy work." The class is assuredly busy, but with the difference that they are receiving effective aid in their reading. This type of material requires close supervision and careful checking by the teacher. It is often possible to train two or three pupils to do the checking,[1] but much of the success of this plan depends on the maturity of the pupils.

[1] James E. McDade, "Questions on Individual Learning," *Chicago Schools Journal*, XI (April, 1929), 281–83.

Every picture aids the pupil in getting meanings from words. He is made aware that words are not merely puzzling groupings of letters but keys that unlock symbols having meanings and associations for him. The picture-dictionary work is particularly well adapted to the child with meager preschool background. That the pictures occasionally are not adequate for the illustration of the words is evident, and any teacher who has attempted to construct materials of this kind knows how difficult it often is to find the picture that best fits a word. It is much simpler to illustrate "girl" or "boy" than to illustrate the word "where" or "there," but, however far-fetched the illustration, the presence of the picture helps the child to master the word. The fact that at any time during the period some pupil is waiting to have his work checked, in order to proceed with the next unit, presents a problem in routine, but pupil assistants should aid in solving it.

Although the workbook material has an appeal to the child much like that of a game and he enjoys the activity, the pupil working with the picture-dictionary units also appears to get a certain satisfaction in being able to work things out for himself. Self-reliance and habits of perseverance are qualities brought out through this self-help method.

SUMMARY COMMENTS

The foregoing data, while possessing definite limitations, warrant certain conclusions regarding the uses and the effectiveness of work materials in first-grade reading. The directions to pupils in workbook material necessitate considerable guidance on the part of the teacher, especially among foreign-language–speaking children, with the result that group instruction and lock-step progress are likely to prevail. However, the reading of directions acquaints the pupils with an important purpose of reading, and the following of directions furnishes them with a variety of activities. The picture-dictionary material requires less direction by the teacher and results in individual progress of the pupils. It provides effectively for the recognition of words and phrases. In addition, the use of picture-dictionary material provides training in habits of dependability and self-reliance.

THE PLACE OF "CRUTCHES" IN INSTRUCTION

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INTRODUCTION

In a recently published article[1] an account is given of the results which followed direct instruction in the use of a "crutch" in fifth-grade arithmetic. The major purpose of the investigation was to describe and catalogue children's difficulties in adding proper fractions. Group tests were administered and individual interviews were held to secure data on the processes employed by 245 fifth-grade children enrolled in seven schools. Tabulation of the data some weeks after the testing revealed use of the crutch in two of the schools. The circumstances of its use and of its discovery led to a special inquiry into the effects of the crutch on efficiency and on subsequent development in the ability to add proper fractions. In the conditions under which the inquiry was prosecuted, it was impracticable to determine whether the crutch had made any positive contributions to learning, and it was therefore necessary to adopt some other means of evaluating the crutch as an instructional device. A point of attack was found in certain objections which are frequently raised by those who oppose crutches in teaching. The data were accordingly treated with a view to testing the validity of these objections with regard to the particular device in question.

In the first part of this article the practice of deriving instructional procedures, such as the crutch here studied, from opinion and deduction from psychological principles is critically examined. In the second part summaries of the data secured in the investigation will be examined to determine the effects of this crutch on learning. In the third part consideration will be given to certain suggestions in the findings for the psychology of learning and of teaching in so far as crutches are concerned.

[1] William A. Brownell, "An Evaluation of an Arithmetic 'Crutch,'" *Journal of Experimental Education*, II (September, 1933), 5–34.

NEED FOR A DIRECT ATTACK ON EDUCATIONAL METHOD

Futility of decisions based on opinion.—Research data dealing with the place of crutches in instruction are exceedingly rare. This is, however, far from saying that the problem has received no attention. It is, rather, to say that the problem has been left almost entirely to the arguments of theorists, who in the last few years have expressed themselves in increasing numbers as opposed to the use of these devices. Nevertheless, there still remain some who insist that crutches perform a useful function in facilitating learning.

The objections of those who oppose crutches may be summarized as follows: (1) Many times crutches confuse rather than clarify the processes to be learned. (2) They are frequently as difficult to learn as are the processes which they are assumed to simplify, often more difficult. (3) Even if they possess temporary value, they tend to outlive their usefulness and to become fixed as uneconomical habits. (4) Consequently, they block learning by encouraging the learner to remain at a lower level of efficiency and maturity than he otherwise might attain.

It is only fair to assume that not even the staunchest exponent of crutches would favor teaching devices which produce in children the undesirable effects listed. Certainly, the advocate of crutches is as sincerely interested as is the opponent of crutches in furthering learning. These undesirable effects are not produced, however, by the teaching procedures described as crutches by those who favor the use of such devices. In the opinion of these persons devices which they call crutches (1) contribute meaning and intelligibility to the processes which they are designed to explain, (2) are readily understood by children, (3) are abandoned as soon as they are no longer needed, and (4) are conducive to the most economical growth and the soundest maturity.

Viewed in this manner, the purely theoretical discussion of the value of crutches is seen to be utterly futile. The argument becomes a matter of definition and identification. If Instructional Device A results in seriously impeding learning, it is called a crutch by those who attack crutches and is called something else by those who defend crutches. If Instructional Device B results in promoting healthful learning, it is called a crutch by the supporters of crutches and is called something else by the other side in the debate.

In the last analysis, therefore, to describe a teaching procedure as a crutch is to describe it not at all. Identification on purely a priori grounds is open to serious error. The supporter of crutches optimistically imagines in the procedure virtues which may be nonexistent to children. The opponent of crutches is likely to argue that, since he does not use the procedure himself, it can be of little service to the learner, and hence he is likely to see in it all the evils he subsumes under the category of crutches. It follows, too, that any general direction to teach many crutches or to teach none at all[1] is at best meaningless and at worst wholly misleading. The immediate question still remains to be answered for each proposed procedure, "Is it a crutch?" Whether to employ the procedure or not to employ it becomes a question of labeling and naming it when there is a much more fundamental issue involved, namely, whether the changes it effects in children are helpful or harmful. This issue, it is clear, is not to be settled through the agency of further opinionated discussion; settlement is to be expected only from impartial research.

Dangers in deductions from psychological principles.—Participants in the dispute concerning the value of crutches in general or of some device in particular often base their arguments on psychological principles. There is grave danger in this practice. In the first place, such deductions are likely to constitute instances of "begging the question." The logical error lies in assuming universality in a principle cited in such a way that it applies to the special case in question. Once this assumption is made, naturally the inference follows from the principle. An example of this kind of circular reasoning is to be found in the objection to crutches which is presumed to be inherent in the principle, "Other things being equal, form no habits which must later be broken." This principle is accepted as having universal application; the crutch is then identified as one of the habits "which must later be broken;" and, finally, the weight and authority of the principle is invoked against the crutch as being uneconomical and injurious.

Such principles as that just mentioned cannot safely, in the pres-

[1] For example, " 'Crutches' of all kinds should be avoided [in arithmetic instruction], as they become distinct liabilities as soon as the initial stages of the learning have been passed."—T. G. Foran, "A Summary of Some Principles of Teaching Arithmetic," *Catholic Educational Review*, XXVIII (May, 1930), 260.

ent state of experimentation, be taken as universal. As a matter of fact, a principle is not absolute until there have been accumulated a great many instances of the phenomena covered by the principle, including the particular group of phenomena which at a given time are receiving attention. In other words, a principle can validly be brought to bear on data only when those data have already contributed to establish the principle. The movement seems to be from data to principle and back to data. When the direction is altered, as is frequently done in deducing educational procedures, and when, as the first step, the principle is applied directly to data, there is the danger that essential conditions may have been violated. A far wiser course of action, it would seem, is to study immediately and at first hand the problems that arise in connection with educational methods, as has been done in the study of the fraction crutch in the investigation referred to in the opening paragraph.

There is a second reason for questioning the soundness of inferences regarding educational procedures made from psychological principles. The educational situation is always a complex of a great number of factors, part of which are likely to escape notice. There is always the possibility that the educational theorist, in centering his attention on one aspect of this complex and in citing the psychological principle which seems to apply to it, may fail to consider other factors with their governing principles, some of which may actually negate the operation of the theorist's principle. In this connection, the writer is reminded of the psychologist who through his study of football had become convinced of the importance of quick reaction time in the linesmen. On the psychologist's recommendation the football coach selected one team from his squad purely in terms of the speed with which the men responded to signals. Under the conditions of a practice game it became clear that reaction time is but one of a number of important factors in football-players, among the others being such matters as weight, interest in the game, and knowledge of special tricks, and that superiority in some of these factors was often sufficient to offset slowness in reaction time. In a similar manner, in education the attempt to apply general psychological principles, even sound principles, may be exceedingly difficult, confusing, and really harmful because of the possibility of neglecting or of unduly emphasizing essential elements in the situation.

Inference from psychological principles constitutes a safer basis than does opinionated discussion for the selection of educational practices, for the reason that the principles serve as controls in thinking, even though the controls must be admitted to be tentative. Still, inference of any kind is an indirect form of solving problems and, even when the premises are acceptable, is open to whatever logical errors are characteristic of the person who is making the deductions. A direct attack on problems, educational or otherwise, is to be preferred.

EFFECTS OF THE ARITHMETIC CRUTCH ON ABILITY TO ADD PROPER FRACTIONS

The foregoing criticisms of theory and psychological deduction as a basis for educational practice explain why the writer welcomed the opportunity to measure the effects of use of the particular arithmetic crutch which was found in the course of the investigation. The fact that in all seven schools the arithmetic textbook was the same and the arithmetic course of study essentially the same served to emphasize and, as it were, to isolate this instructional device in the two schools which taught the use of the crutch. There were also two other features of the situation which, from the standpoint of research, were especially encouraging. In the first place, the crutch was employed under conditions which favored a quantitative type of evaluation. In the second place, the device used in the two schools[1] seemed to be an excellent example of what is usually termed a crutch. It was not original with the children. On the contrary, it was given them by their teachers. Its purpose was to explain the logic underlying the operations involved in adding proper fractions. While the children were required to show the form in every example in this process, they were expected to use it only temporarily—until the end of the term. The arithmetical operations made necessary by its use were artificial, cumbersome, and inflexible. Altogether, it seemed that, if the four major objections raised against crutches

[1] As used in performing the addition in one of the simplest examples in the test, the crutch had the following appearance:

$$\begin{array}{ccccccc} (1) & (2) & (3) & (4) & (5) & (6) & (7) \\ \frac{1}{2} & = & \frac{1}{2} & \times & \frac{1}{1} & = & \frac{1}{2} \\ \frac{2}{2} & = & \frac{2}{2} & \times & \frac{1}{1} & = & \frac{2}{2} \\ & & & & & & \frac{3}{2} \end{array}$$

in general were really valid and absolute, the objections ought to be demonstrable in concrete form in the case of this particular crutch.

Effect on initial learning.—Two of the four objections to crutches which have already been listed bear on learning in its initial stages. It is claimed (1) that crutches frequently obscure the process which they are designed to explain and (2) that they are often as difficult to learn as are the processes without them. Since this investigation was not instituted until after the children had passed through the early stages of learning and were supposedly proficient in adding proper fractions, it was impossible to secure data of immediate and direct relevancy to these two objections. However, data of an indirect sort were secured. All 245 children took a test consisting of fifteen examples in the addition of proper fractions. The scores of the 80 children using the crutch did not differ materially from the scores of the 165 children using no crutch. In other words, the children using the crutch *had* learned to add fractions about as well as had the children who knew nothing of the crutch. With what difficulty the crutch children had learned the form itself and whether the form assisted them or impeded them in developing the ability it was intended to explain, is not known. But this much can be said with assurance: if the crutch introduced special elements of difficulty into the learning, those difficulties were not insurmountable and did not show themselves in any way in the test of ability.

Effect on level of ability attained.—Consideration of the third objection, that crutches tend to remain as habits after they have ceased to be of value, may be postponed for the moment. The fourth objection is to the effect that crutches block learning and encourage their users to remain at unnecessarily low levels of efficiency and maturity in the functions learned. On this point, as it applied to the fraction crutch, two bodies of data were available. The first body of data has already been mentioned: on the group fraction test the crutch children showed clearly that they were as efficient in adding proper fractions as were the non-crutch children. The second body of data was collected by means of personal interviews which were held at the time of the group tests. A careful record was kept of the undesirable habits, erroneous processes, and faulty procedures which were employed by each of the 245 children in adding the fractions

in the test. Later these faults were classified and tabulated. A comparison of the crutch and the non-crutch children showed no significant difference between the two groups with respect to the total number of different faults, the number of times faults appeared in the reports of their thinking, the average number of children who employed the different faults, or the average number of times each faulty procedure was used. The crutch appeared to represent a set of habits which were self-contained and relatively autonomous—a system which allied itself with, or remained apart from, other sets of habits (such as those here called "faults") as the circumstances of learning dictated. To teach children the crutch did not make them any the less capable of developing mature forms of skill in adding fractions. Furthermore, the inference appears to be justified that, not having led to the adoption of an unusual number of faults or to excessive reliance on those employed, the crutch did not seriously interfere with the initial learning of the arithmetical process involved.

Persistence of the crutch.—Concerning the third objection, that crutches outlive their usefulness and persist as permanent habits, the data obtained for the fraction crutch were complete and directly relevant. As a consequence, three conclusions could be drawn with confidence, one of them meeting the objection directly and the other two bearing on related issues.

The data, first of all, revealed that the majority of the eighty children who were taught the crutch discarded it in little more, and perhaps in less, than four months' time from their introduction to its use. The evidence for this conclusion is as follows: (1) In School 1 none of the twenty-two children in the higher section of the grade used the form on Test 1 (the first time the fraction test of fifteen examples was administered), that is to say, four months after beginning the study of the addition of fractions. (2) Three of the children in the lower section, in which instruction in adding fractions had been completed about six weeks before the test, failed to use the crutch on Test 1. Two of these pupils were repeating the work of the quarter and hence might properly be classed with the twenty-two children in the higher section so far as familiarity with the crutch is concerned. (3) The teacher of this lower section reported great difficulty in maintaining the continued use of the crutch after the chil-

dren discovered, within a few weeks, that they could add fractions without it. (4) None of the twenty-three children in the lower section used the form on Test 2, given three months after Test 1, at which time they were enrolled under a new teacher in the higher section of the grade. (5) This new teacher is authority for the statement that only a few of the twenty-three children had to be taught new methods to replace the crutch when they came to her at the beginning of the quarter and that these few mastered the new methods with comparative ease. (6) In School 2 none of the children in Grade VI employed the form a year and four months after they had been taught it. (7) Furthermore, the teacher of the grade testified that but a few of their number used it at the beginning of the year. (8) In Grade V several children on Test 1, given six weeks after instruction on the crutch, added fractions without it. (9) The data for Test 2, given three months later, showed the crutch still in common use. It was found, however, that these data were invalid, for the teacher at the time of this test had inadvertently warned the children to show on their papers how they had secured their answers, thereby specifically encouraging them to employ the crutch. The mere fact that this teacher, in order to insure that the children reveal their use of the crutch, felt the necessity of cautioning them to do so is evidence of her knowledge that many of them were accustomed to adding fractions without it.

Related to this first conclusion are two others which are based on the same data. The second conclusion is that not all children of their own initiative invented or adopted from others a new method to take the place of the crutch which they had been taught. This conclusion is based principally on the statements of the teacher of Grade VI in School 2 and of the teacher of the advanced section in Grade V of School 1 to the effect that some pupils, months after they had been taught to use the crutch and a considerable period of time after many of their classmates had dispensed with it, still continued to use the old form. It may well be the indisputable presence of some pupils of this type in every school that has led certain writers on methods of teaching and on the psychology of learning to object to crutches on the ground that they become fixed forms of behavior.

It is relatively easy to exaggerate the significance attaching to the reactions of a few children and, as a consequence, to condemn any given device because it has apparently worked some harmful effect on those few. So far as the fraction crutch is concerned, the number of children who betrayed long-time dependence on the form was very small, and all of them, according to their teachers, responded readily to instruction in more approved procedures. Almost all instructional devices, not crutches alone, would have to be proscribed if a standard of effectiveness of 100 per cent were required for their use. Too much is known about the facts of individual differences in children to permit one seriously to expect any method of teaching to be equally well adapted to all pupils.

The third conclusion is that the teachers in the two schools studied, by setting up appropriate regulations and by insisting on the observance of these regulations, were able to secure some use of the crutch even after it had lost whatever value it may at one time have had for learning. Among the fifth-grade children in both schools, there were undoubtedly many who on Test 1, and in School 2 on Test 2 also, would have done as well without the form but who employed it because they knew they were expected to. Under circumstances of this kind, use of some undesirable device may be, and probably frequently is, misinterpreted to be the result of a need for that device rather than the effect of the trait of docility and of willingness to comply with instructions.

Limitations to conclusions.—Attention has already been called to the fact that all the conclusions, framed as they are with reference to the four major objections to crutches, are negative. That is to say, the conclusions merely state that the four types of harmful results which are said to follow from the teaching of crutches did not occur in the case of the fraction crutch—at least in so far as these results could be measured by the means which were adopted. Nothing in these conclusions, however, warrants the inference that on this account the crutch should be taught. In order that the soundness of this inference might be tested, specially designed experiments, much broader in their scope than the investigation summarized in this article, would need to be prosecuted.

IMPLICATIONS OF THE STUDY FOR TEACHING AND THE PSYCHOLOGY OF LEARNING

How far one is justified in generalizing from this single partial evaluation of a crutch is a question. According to the more rigorous tenets of science, generalizations could not safely be formulated until, first, the consequences of the fraction crutch reported here for two schools were shown to correspond with the consequences of the use of the crutch in other schools like and unlike the two of this investigation and until, second, it was established that the consequences of the fraction crutch are typical of crutches in general. In the absence of such extensive data, one may be guilty, in generalizing, of committing the same errors which were mentioned in criticizing inference as a basis for educational method. Nevertheless, on grounds something like those of the logician who discredits a universal by discovering an exception thereto, an attempt will be made to generalize from this one study of a single crutch. The generalizations will, however, take the form of cautions and suggestions rather than of principles and scientific conclusions.

Criticism of psychological principles underlying objections to crutches.—Two psychological principles are implicit, and sometimes explicit, in the objections of educational theorists to teaching crutches. One of these has already been referred to: "Other things being equal, form no habits which must later be broken." The other of the principles may be stated: "Acquire reactions in the form in which they are to be used." Both of these principles need to be taken, not as "laws" as they generally are taken, but as guides and checks to thinking. Otherwise, one may readily err more seriously in applying the principles than one would err if one had these principles not at all.

In the first of the principles the use of the verb "to break" is unfortunate. This word implies a type of change in behavior which is actually far less fundamental and far more common than seems to be suggested. As a matter of fact, when one "breaks" a habit, he really substitutes one mode of response for another. It is not a case of eradicating anything, of shattering it, or of rooting it out of the organism. Rather, the patterns representing the "broken" habit are still in the neuromuscular system and are fully susceptible to excita-

tion even after the newer forms of response are well established. In other words, the "broken" habit is merely one which is no longer used, having been superseded, or at least overlaid, by a new habit. When for any reason the new habit cannot or should not be innervated, the "broken" habit is found ready to perform—and in many cases to the immense profit of the individual. When the infant, in learning to walk, "breaks" the habit of crawling, the acquisition of the new behavior pattern does not annihilate the old pattern: the infant is not rendered incapable of crawling; he simply does not crawl because walking is usually a more economical and effective mode of reacting. If for any reason the act of walking cannot or should not be performed, the infant can and does crawl.

Something analogous seems to have been characteristic of the experience of the eighty children who in the two schools investigated first learned and then abandoned the fraction crutch. They certainly formed the habits which are required by the crutch, and just as certainly they "broke" those habits; that is, they substituted new forms of response for old forms. The old habits were not absolutely gone; they simply were not regularly employed to add fractions. When unusual circumstances (such as the caution of the teacher in School 2 at the time of Test 2) made it undesirable to use the new habits, the old ones could and did function.

There is also in this first principle ("Other things being equal, form no habits which must later be broken.") another qualification which needs to be appreciated if the principle is to be properly applied. The principle seems to suggest that learning should proceed in a straight line and that, through the exercise of the necessary precautions, this straight course of learning may readily be made a reality. At the risk of being as dogmatic as the principle appears to be, it may be stated that *no* learning ever takes place in a straight line. Whether it *should* so take place is even debatable. The customary course of learning is crooked and irregular; it consists, even under the most favorable circumstances, in a series of errors and corrections, of awkward adjustments and their refinement, of growth from primitive clumsy performance to mature proficiency in the function being learned. Nor is it to be thought "wasteful" that this course is characteristic of learning. Errors, inadequate adjustments, imma-

ture types of performance may contribute much, not merely to the ultimate development of a high degree of ability in the given function, but also to the better learning of other functions. The unpleasant experiences of one's first attempts to swim may not only develop a healthy fear of water, which is one aspect of the function being learned, but may also be wholesome correctives to foolhardiness in general. To make the point without further elaboration, one needs to pay due heed to the first four words of the principle, "Other things being equal, ..." In certain circumstances the limitation suggested by these words may be so important as to negate the rest of the principle and to make it read: "Form no habits which must later be broken unless you should form habits which must later be broken."

To a considerable degree the notion that learning should, and frequently does, proceed in a straight line is involved in the second principle, "Acquire reactions in the form in which they are to be used." Careless interpretation of this principle also assumes that once a reaction has been mastered, learning is to that extent completed: the given reaction is from that time forward susceptible to the stimuli with which it became associated in learning, and to these stimuli the response is made substantially without modification. Such a view makes learning a static thing, something which can at some point be regarded as finished. It neglects the ceaseless change which occurs both in the stimulating situation and in the reacting organism. As a matter of fact, one never reacts twice to the same situation in the same way. Always in the second situation changes have taken place—if not in the potential stimuli, then in the organism itself. The making of the first response alters the organism too much (even were there no other changes in the elapsed time) to justify the statement that the *same* organism responds the second time. Put somewhat less technically, learning never stops at some point; the reactions which are acquired are continuously subject to modification from subsequent reactions. Learning is dynamic, not static. Growth and development are possible only because of the constant change in behavior, and it is characteristic of growth and development that with opportunity for experience this change is in the direction of greater economy of response.

Due recognition of the dynamics of behavior and of learning is needed to protect one from absurd applications of the principle, "Acquire reactions in the form in which they are to be used." Contrary to the apparent implication of this dictum, learning is not completed at a jump. If the function learned is at all complicated, the early forms of reaction must inevitably be crude. These crude reactions are not the reactions which characterize performance at later stages. On the other hand, the reactions which characterize skilled performance cannot be at once acquired. They are the products of the kind of evolution which is suggested in the preceding paragraph.

A position with respect to crutches.—This article concludes on essentially the same notes which were struck in some of the early paragraphs. There are serious dangers in the practice both of attacking and of defending crutches in terms of personal opinion and inference from psychological principles. The need is for the experimental investigation of the virtues of proposed procedures. Pending such studies, a person may for himself rely on his experience with procedures and devices, retaining them for himself if they have proved of value and rejecting them for himself if they have served no useful end. In the absence alike of research and personal experience, decisions based on opinion and psychological deductions must be carefully safeguarded. No psychological principle is so inclusive that it alone suffices to determine action in an educational situation. Always attention must be given both to the limitations of the general principle and to the operation of other principles which apply. The tendency has been to base arguments on too few principles and on too narrow interpretation of those selected. When the course of learning is seen in its entirety and its complexity, the problem of crutches may take on different meaning. Furthermore, it is well to bear in mind that the ultimate standard by which educational procedures are to be judged is not whether they are crutches or are not crutches but whether they facilitate learning or interfere with learning. In order that this fundamental criterion might be more generally honored, it might even be well to eliminate the term "crutches" from the vocabulary of education.

SELECTED REFERENCES ON KINDERGARTEN-PRIMARY EDUCATION

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This article presents the second list of selected references dealing with kindergarten-primary education. The publications listed herein appeared during the year from January 1, 1933, to January 1, 1934. In general, studies in special subject-matter fields or in the field of preschool work have been excluded unless they give major emphasis to kindergarten-primary problems. The titles, chosen from the much longer list of publications for the year, are grouped under the following headings: (1) general educational aspects; (2) organization, techniques, and curriculum; (3) investigations and experimental studies.

General Educational Aspects[1]

140. Bailey, Edna W., Laton, Anita D., and Bishop, Elizabeth L. *Outline for Study of Children in Schools.* New York: McGraw-Hill Book Co., Inc., 1933. Pp. viii+248.

Presents manual for directed study and observation of child growth and development at preschool, elementary-school, and secondary-school levels. Organized data gleaned from the literature of the field, forms for recording observations, and a table of psychometric tests are outstanding features.

141. Davis, Mary Dabney. "Reconstructing Legislation," *Childhood Education,* X (October, 1933), 11–15.

Reviews laws governing the establishing and the maintaining of kindergartens in all states and gives practical suggestions for reconstructing ineffective laws.

142. Forman, Henry James. *Our Movie Made Children.* Payne Fund Studies of Motion Pictures and Youth. New York: Macmillan Co., 1933. Pp. viii+288.

Sets forth facts collected by a group of investigators during four years of study in a dozen cities. Discusses movie-going habits of children; the nature of the pictures; and their influence on sleep, on general well-being, and on mental, emotional, and moral development.

[1] See also Items 124, 127, 137, and 139 in the list of selected references appearing in the March, 1934, number of the *Elementary School Journal.*

143. FOSTER, JOSEPHINE C. (Editor). *The Broadening Field of Teacher Activity.* Bulletin of the Association for Childhood Education. Washington: Association for Childhood Education, 1933. Pp. 36.

Includes reports given at the 1932 conference of the association and articles specially submitted by the following persons: Josephine C. Foster, Ruth Andrus, George D. Stoddard, Leo J. Brueckner, Neith E. Headley, and Marie Belle Fowler. Papers concern health education, keeping records, research, and home and school co-operation.

144. FREEMAN, FRANK N. "Needed Research in the New Education," *Progressive Education*, X (April, 1933), 220–24.

Classifies educational research under at least three headings: discovery, invention, and testing. Stresses needed developments in the first two types and points out importance of shifting emphasis from "exclusive pursuit of measurement to an energetic pursuit of the other two types of research."

145. HILL, PATTY SMITH. "Shall the Youngest Suffer Most?" *Parents' Magazine*, VIII (April, 1933), 13.

Characterizes preschool period as one susceptible to disease, emotional strains, and influences from criminal surroundings. Urges school officers and parents to find ways and means of adjusting conditions for kindergarten-primary children in order that they may be protected from the physical, emotional, and social disturbances induced by economic stress in homes.

146. HISSONG, CLYDE, and HISSONG, MARY. *An Introduction to the Principles of Teaching.* Philadelphia: John C. Winston Co., 1933. Pp. xii+260.

Discusses progress of educational theory from teachings of Locke to those of Dewey and seeks to formulate a teaching procedure based on findings of biological, psychological, and sociological research.

147. ISAACS, SUSAN S. *Social Development in Young Children.* Behavior of Young Children, Vol. II. London: George Routledge & Sons, Ltd., 1933. Pp. xii+480. (Obtainable in the United States from Harcourt, Brace & Co., New York City.)

Follows earlier volume, *Intellectual Growth in Young Children.* Presents studies carried on at Malting House School, Cambridge, England. Part I gives descriptive records of various aspects of social behavior, and Part II deals with bearing of these on educational problems.

148. REED, MARY M. "Conference on the Educational Status of the Four and Five Year Old Child," *Childhood Education*, IX (June, 1933), 481–82.

Reports on various problems discussed at the two-day conference held at Teachers College, Columbia University. Discussion leaders included John Dewey, George D. Strayer, Margaret Holmes, Willard D. Beatty, Mary Dabney Davis, Patty Smith Hill, Mary M. Reed, and others.

149. RUSK, ROBERT R. *A History of Infant Education.* London: University of London Press, Ltd., 1933. Pp. viii+196.

Points out the need for evaluation of policies of infant education for purposes of shaping present practices. Traces development of infant education from

Comenius to the present day and discusses philosophical influences governing state regulations of present infant schools of Great Britain.

150. SMITH, NORA A. "Early Days in the Kindergarten Movement in California," *Western Journal of Education*, XXXIX (September, 1933), 13; (October, 1933), 13–15.

Gives historical material regarding the establishment of first free kindergartens west of the Rocky Mountains by the writer's sister, Kate Douglas Wiggin.

151. STODDARD, GEORGE D. *What the Kindergarten and Nursery School Have in Store for Parent and Child.* Child Welfare Pamphlets, No. 17. Bulletin of the University of Iowa, New Series, No. 694. Iowa City, Iowa: University of Iowa, 1933. Pp. 8.

Discusses offerings of modern nursery schools and kindergartens under the topics: play facilities, assistance in habit formation, problems of nutrition and health, provisions for social development, preventing and eliminating undesirable behavior, maladjustments, parent education, and similar topics.

ORGANIZATION, TECHNIQUES, AND CURRICULUM[1]

152. ARBUTHNOT, MAY HILL. "The Child's Growth in Language," *Parents' Magazine*, VIII (April, 1933), 26–27, 58–61.

Describes characteristics of child's early speech and suggests ways of guiding subsequent language development.

153. BAKER, EDNA DEAN. "Interpreting the Kindergarten," *Journal of the National Education Association*, XXII (April, 1933), 121–22.

Submits evidence supporting thesis that the years before entry into the first grade cover periods of most rapid growth for child—physically, psychologically, and socially. Urges that kindergarten be retained as means of guiding and safeguarding wholesome development.

154. BERNHARDT, JANE, and DAWSON, MARGARET. "The School Environment for the Four Year Child," *Childhood Education*, IX (February, 1933), 248–52.

Describes situations originating in play activities of four-year-old kindergarten children. Urges differentiation of program from that provided for the five-year-old kindergarten pupils.

155. BURKE, MARJORIE. "The Kindergarten Prepares for Reading Success," *American Childhood*, XIX (October, 1933), 13–15, 46–47.

Discusses six types of experience characteristic of kindergarten procedures that contribute to reading readiness.

[1] See also Items 249 and 251 in the list of selected references appearing in the September, 1933, number of the *Elementary School Journal*, Item 299 in the October, 1933, number, and Items 463 and 480 in the November, 1933, number.

156. COOK, GRACE. "Progressive Activities in the Third Grade," *Childhood Education*, IX (June, 1933), 476–78.

Discusses criteria for choosing activities, teacher's part in organizing the activities, and ways of guiding the expanding interests of children.

157. COULTER, EVELYN. "Building Social Attitudes in Young Children," *Progressive Education*, X (October, 1933), 326–28.

Describes social thinking of third- and fourth-grade children pertinent to present-day problems, which was encouraged by a group of primary teachers.

158. DALGLIESH, ALICE. "Picture Books for Today's Children," *Childhood Education*, X (November, 1933), 65–67.

Evaluates selected list of new books for young children.

159. DEMIASHKEVICH, M. J. "Some Doubts about the Activity Movement," *Harvard Teachers Record*, III (October, 1933), 170–78.

Presents criticisms under nine topics: (1) neglect of certain fundamentals, (2) opposition to indoctrination, (3) disregard of mental discipline, (4) failure to train for independent thinking, (5) opposition to books, (6) opposition to memory work, (7) exaggeration of value of experiences, (8) exaggeration of value of play, and (9) false concept of the secret of happiness.

160. DOBBS, ELLA VICTORIA. "Principles and Procedures in Handwork Activities," *Childhood Education*, X (December, 1933), 131–33, 164.

Discusses tools, materials, and methods for early construction.

161. DOLCH, EDWARD WILLIAM. "Testing Reading," *Elementary School Journal*, XXXIV (September, 1933), 36–43.

Analyzes various types of ability needed in learning to read and points out need for tests of these abilities at particular grade levels.

162. ELLIOTT, CHARLES H. "Social Studies in the Rural School," *American Childhood*, XIX (September, 1933), 14–15; (October, 1933), 10–11, 39–40, 42.

Presents course of study growing out of co-operative effort of country schools of New York. Gives units of activities in study of neighborhood farm life.

163. GIVENS, WILLARD E. "School Journeys," *American Childhood*, XIX (September, 1933), 6–7, 40; (November, 1933), 10–11.

Selected articles from a monograph, "Some Oakland School Journeys and What Came of Them," prepared by a committee on improvement of instruction in visual education. Discusses community contacts gained by classes taken on journeys by teachers who seek to vitalize classroom teaching by enriching the experiences of children.

164. KNIGHT, F. B. "Observations upon Beginning Arithmetic," *Childhood Education*, IX (February, 1933), 234–40.

Analyzes the present teaching of arithmetic in primary grades and suggests possible changes in content and procedures.

165. MANUEL, HERSCHEL T., and VOYER, MARY THOMPSON, "What Shall We Expect of the Child Who Enters School at Six Years of Age?" *Educational Administration and Supervision*, XIX (October, 1933), 521–28.

Recommends deferring beginning reading for immature school entrants.

166. REYNOLDS, CLARA P. "Child Art in the Franz Cizek School in Vienna," *Childhood Education*, X (December, 1933), 121–26, 152.

Reports on a lecture given by Cizek to a group of American teachers, in which are embodied principles and characteristics of his work with children between the ages of six and sixteen.

167. *Teaching the Social Studies in Grades One, Two and Three.* Curriculum Bulletin No. 2. Memphis, Tennessee: State Teachers College and Memphis Public Schools, 1933. Pp. 90.

Sets forth objectives and criteria for judging units of work in social studies and outlines suggestive procedures for primary grades. This bulletin and an earlier one, a course of study in arithmetic, are parts of a tentative curriculum for primary grades and represent the outcome of co-operative efforts of local teachers enrolled in the State Teachers College, Memphis, Tennessee.

168. VEVERKA, M. MADILENE. "Fine and Industrial Arts in the Life of the Child," *Childhood Education*, X (December, 1933), 118–20.

A director of elementary courses of study discusses values of fine and industrial arts in a balanced program of activities in the primary grades.

169. WILKINSON, MARY S. (Chairman). *The Right Book for the Right Child.* New York: John Day Co., 1933. Pp. xxvi+358.

An annotated list selected by a subcommittee of the Committee on Library Work with Children of the American Library Association and graded by the Research Department of the Winnetka Public Schools. The first eighteen pages list books for preschool children; the next sixteen pages, books for primary-school children.

INVESTIGATIONS AND EXPERIMENTAL STUDIES[1]

170. BONEY, C. DE WITT. *A Study of Library Reading in the Primary Grades.* Teachers College Contributions to Education, No. 578. New York: Teachers College, Columbia University, 1933. Pp. vi+70.

Surveys sixty-one courses of study in reading and seventy-five professional books issued betweeen 1912 and 1931. Finds that emphasis during latter seven years of the period is given to library reading as integral part of primary reading program. Examines techniques for conducting library reading programs set forth in the literature studied.

[1] See also Item 308 in the list of selected references appearing in the October, 1933, number of the *Elementary School Journal*, Items 432 and 474 in the November, 1933, number, and Items 74, 80, 98, 107, 114, and 121 in the March, 1934, number.

171. GRAHAM, BEN G. "Amount of Instruction Cost Allotted to Kindergartens," *Official Report of the Department of Superintendence*, pp. 229–30. Washington: Department of Superintendence of the National Education Association, 1933.

Interprets data submitted by sixty-eight large cities on administrative practices governing kindergartens and indicates decreases or increases in kindergarten service.

172. GUNDERSON, AGNES G. "Geographical Materials Contained in Readers for the First Three Grades," *Elementary School Journal*, XXXIII (April, 1933), 608–15.

The author analyzed ten series of school readers to determine the extent of the geographical material included in the textual material. The content was checked for (1) bare mention, (2) brief minor mention, (3) extensive minor mention, and (4) major mention. Several unanswered questions are raised.

173. HILDRETH, GERTRUDE. "Information Tests of First Grade Children," *Childhood Education*, IX (May, 1933), 416–20.

Discusses results obtained from an information questionnaire given to first-grade entrants. Suggests use of the data in determining curricular needs of beginners.

174. JAMES, PHILIP. *Children's Books of Yesterday*. Edited by C. Geoffrey Holme. New York: Studio Publications, Inc., 1933. Pp. 128.

Presents reproductions of pages from children's books now in public and private collections in America and Europe. Reproductions range in date from 1672 (when first picture-book for children was published) to 1902. A companion work to *Children's Toys of Yesterday* (1932) and *Art for Children* (1929).

175. JERSILD, ARTHUR T. *Child Psychology*. New York: Prentice-Hall, Inc., 1933. Pp. xiv+462.

Provides logical treatment of child's development from birth through early childhood. Includes development of language, motor skills, the emotions, social behavior, learning, individual differences, growth of understanding, and development of personality. Book includes results of researches at Child Development Institute, Teachers College, Columbia University, and elsewhere.

176. JERSILD, ARTHUR T., MARKEY, FRANCES V., and JERSILD, CATHERINE L. *Children's Fears, Dreams, Wishes, Daydreams, Likes, Dislikes, Pleasant and Unpleasant Memories*. Child Development Monographs, No. 12. New York: Teachers College, Columbia University, 1933. Pp. xii+172.

A study by the interview method of four hundred children from five to twelve years of age.

177. LITHAUER, DONAH B. "A Follow-up Report of the Later School Progress of Children of Primary School Age Trained in an Experimental Kindergarten," *Journal of Juvenile Research*, XVII (July–October, 1933), 175–78.

Follows progress of slow group of school entrants given kindergarten training as described in a previous article, "Experimental Kindergarten for Children

of Primary School Age," appearing in the *Journal of Juvenile Research* for April, 1932. Discusses progress of the same children through primary and intermediate grades and indicates the value of special kindergarten training in prevention of failure.

178. NOREM, G. M., and WIEDERAENDERS, M. F. *Studies in the Psychology of Learning.* Educational Psychology Series, No. 1. University of Iowa Studies in Education, Vol. VIII, No. 6. Iowa City, Iowa: University of Iowa, 1933. Pp. 76.

Revalues experiments in transfer of training and presents a critique of the "bond and *Gestalt* psychologies" applied to problems of elementary reading.

179. PECK, PAMELIA LEIGH. "The Use of Drawings in Predicting the School Achievement of Beginning Children," *Educational Administration and Supervision*, XIX (November, 1933), 621–26.

Analyzes limitations of existing tests of drawings and presents modifications used in tentative test that author is formulating.

180. SANFORD, CHARLES WILSON. *A Critical Study of Certain Aspects of Infant and Common School Education, 1810–40* (Abstract of Doctor's Thesis). Urbana, Illinois: University of Illinois, 1933. Pp. 8.

Summarizes characteristics and practices. Establishes 1818 as the date of introduction of tuitional infant schools and 1840 as the date of introduction of "free infant schools, which became primary schools." On basis of evidence gleaned from newspapers, journals, and general literature of the period, the author concludes that the essential features of educational practice differed greatly from those found in latter-day histories of education.

181. WITTY, P. A., and LEHMAN, H. C. "The Instinct Hypothesis versus the Maturation Hypothesis," *Psychological Review*, XL (January, 1933), 33–59.

Reviews and criticizes recent studies dealing with maturation and practice effect under six headings. Points out that these studies are breaking down the older distinction between "instructive" and "learned" behavior and concludes on basis of evidence submitted that most forms of behavior depend on a combination of hereditary-environmental factors.

Educational Writings

REVIEWS AND BOOK NOTES

A symposium in school administration.—The value to the profession of school administrators of a symposium[1] which includes brief treatments of its major problems by twelve representative men will determine the extent of its contribution to the literature of public-school administration. Prepared by the friends of Ellwood P. Cubberley and dedicated to him at the time of his retirement from Stanford University, this volume represents a fitting encomium to that great leader in educational administration. Each of the twelve contributors gives expression to the appreciation of school administrators for the unique contribution which Dr. Cubberley has made to the public schools of this country.

In addition, the contributors attempt to carry on where Cubberley left off; to state the problems in the several phases of administration which the changing conditions during the past five years have brought to the front; to summarize the background which is necessary for an intelligent grasp of these problems; to formulate the principles on which their solution depends; and to give, in so far as the limited treatment will permit, some suggestions with regard to the practical ways and means by which the schools will continue to improve.

Since each contribution was limited to twenty pages, the success with which the authors deal with the particular phases of public-school administration allotted to them is varied, depending on the nature of the material and the complexity of the problems involved, as well as on the ability of an author to contract his material without sacrificing clearness for conciseness. For example, the three articles dealing with the relation of the superintendent to the board of education, the administrative work of the principal, and the school-survey movement are so limited in their titles that it is possible for them to contain a fairly adequate, even though a very concise, statement of the fundamental principles and a discussion of the outstanding problems. On these subjects the respective authors—Strayer, McClure, and Sears—have been successful in meeting the situation. In such fields, however, as the supervision and improvement of instruction, and the construction and revision of the curriculum, the twenty pages, in spite of the skilful attempts of the authors—Kyte and Norton, respectively—are palpably insufficient to provide more than a good running start.

[1] *Modern School Administration:* Its Problems and Progress. Edited by John C. Almack. Boston: Houghton Mifflin Co., 1933. Pp. x+382. $2.50.

An important decision is made by each author in determining the amount of illustrative detail needed to make the material readable and easily applicable. Reeder, in the article "School Finances and Business Management," presents a mixture of detail illustrating how a superintendent may effect economies, a summary (necessarily too brief) of the principles of taxation, with a plan for the business education of the superintendent. In spite of such a mixture, the treatment is good in that it stimulates interest, indicates the most urgent problems, and gives some good advice with regard to professional preparation in this phase of the work of the superintendent. The article "School Properties and Schoolhouse Construction," by Hill and Bursch, the only article in the symposium which is written jointly by two authors, is a very interesting combination of the educational philosophy underlying the design of modern school buildings and such practical phases of the subject as the building-repairs program, management of supplies, and school property accounting. The abruptness with which the reader plunges from practical detail to philosophical analysis and generalization is an indication of the difficulties under which the authors labored in contracting their material to the limited space allotted them.

The question of the function of a symposium of the kind represented by this volume naturally arises. Although in the field of professional literature compilations by several authors have appeared, this volume is unique in its attempt to cover the entire field of school administration, as well as in the precise, uniform, and highly restricted allotment of pages to each division of the field. The use of such a volume with students beginning the study of public-school administration may be justified on the ground that it will serve to orient the students in the field and stimulate them to further study and investigation in those particular divisions of the work which claim their interest. On the other hand, a concise summation of this type for beginning students in one of the other professions, for example, medicine, would be considered premature and inadvisable. In my opinion, this criticism is equally valid in the relatively infant profession of school administration. I believe, therefore, that this volume will find its best function as a convenient vehicle, possibly as a substitute for professional periodical material, to bring to the administrators with training and experience, already working in the field, a summary of the recent developments in their profession.

RICHARD W. BARDWELL

SUPERINTENDENT OF SCHOOLS, MADISON, WISCONSIN

An appraisal of the major systems of school fund custody.—Beach's study[1] aims primarily at a critical investigation of the systems of school-fund custody in vogue in New York, with a view to the correction of deficiencies and evils. In

[1] Fred F. Beach, *The Custody of School Funds:* An Appraisal of Systems of School Fund Custody with Particular Reference to New York State. Teachers College Contributions to Education, No. 577. New York: Teachers College, Columbia University, 1933. Pp. x+160. $1.75.

effect, however, it develops general criteria of efficiency and applies these criteria to the appraisal of the major systems of school-fund custody found in the United States.

Seven different criteria are developed and validated in Part I of the study, and four of them are used in the comparative evaluation of four systems of school-fund custody. The criteria include safety, economy, knowledge of financial status, responsibility, simplicity, readiness for audit, and selection of personnel. The custody systems examined in the light of these criteria are (1) the school-board-treasurer system, (2) the clerk-treasurer system, (3) the governmental-treasurer system, and (4) the depository system.

Application of the criteria to the systems brings out the following points: (1) From the standpoint of safety, the clerk-treasurer system is weak and the depository system is strong in that the latter is, and the former is not, readily subjected to internal check. (2) From the standpoints of economy and simplicity, the clerk-treasurer and the depository systems are the cheapest and the least awkward to operate. (3) From the standpoint of personnel, measured by the possibility of securing a person with training, character, and experience for the trust of custodianship, the depository system ranks highest. Next in order is the clerk-treasurer system. Of the four systems of custody, the depository system "recommends itself most highly."

Part II of the study applies the results arrived at in Part I to the systems of school-fund custody operative in the state of New York. The interest of Part II is therefore more restricted than that of Part I.

The study is well conceived, well organized, and well written, and it constitutes an important addition to the literature on public-school finance. In the reviewer's judgment, however, one important criterion has been overlooked. Experience with the depository system in Texas (see *Texas Educational Survey Report*, Volume II, chapter viii) indicates that, while this system stimulates adequate general accounting of the receipts and the expenditures of school moneys in terms of legally recognized "funds," it is difficult to secure adequate functional accounting in terms of the standardized school-accounting systems. Banks and other depositories are divorced from the schools as such and are not easily convinced of the need for more than an accurate accounting of various funds. If functional accounting exists, particularly in the smaller independent districts, it is, in Texas, generally provided by the schools at additional expense.

B. F. PITTENGER

UNIVERSITY OF TEXAS

The effect of motion-picture shows on the sleep of children.—In nearly every household where there are children, it is a problem of considerable practical importance to determine when, if at all, they should be allowed to attend the movies. What benefits are to be derived, and what bad effects may there be, and do the beneficial effects outweigh the evil, or vice versa? Obviously, we are far from

having reliable data with which to answer such questions and will be for a long time to come. Furthermore, no one can doubt that proper habits of sleeping are among the most important habits with which a child can be equipped for a useful and happy life. While there is evidence that sleeping, in its characteristic mode of appearance in any individual, is subject to training, there is relatively little known concerning what constitutes normal sleep—whether wide variations as to duration, regularity, and depth of sleep may exist without harmful effects, whether the recuperative effects of sleep are proportional to its depth, and whether depth is directly related to absence of bodily restlessness during the period of sleeping.

The monograph under review[1] presents new data with reference to these problems. It is the record of prolonged and painstaking investigations of the sleeping habits of a group of 170 children of both sexes from six to eighteen years of age, who were at the time of the study inmates of the Ohio State Bureau of Juvenile Research. The data were secured by the use of a device attached to the bed of each sleeper which recorded the occurrence, the extent, and the duration of all gross bodily movements made during the period of sleep. The study stretched over a period of 347 nights and thus enabled the investigators to secure data concerning seasonal variations in sleep as well as information on many other aspects of their problem, such as the effects on sleep of attendance at movies, the effect of coffee, and the effect of deprivation of sleep.

These means of study indicate that each child under routine conditions of living, that is, when not disturbed by illness or upset by emotional strains, tends to follow a rather consistent pattern of periods of restlessness and quiet throughout the night. However, the individual differences in these respects are so large as to preclude the use of the average as a norm in a regulative sense, at least in the case of older children. Younger children are more quiet sleepers than older. Variations in the temperature and the humidity of the air in the sleeping-room have little or no effect, except perhaps in the case of sudden and marked differences in temperature.

In general, there is evidence from this study for the view generally held that the earlier half of the sleeping period is the more recuperative, since it is the time of least restlessness. Activity is found to be greatest immediately after the child has gone to bed, and it then decreases gradually until a minimum for the entire night has been reached. This point of least activity occurs from one-half to one and a half hours after retiring. From this time onward the sleeper becomes gradually more and more restless until the time of awakening.

Attendance on motion-picture shows has a marked effect on the subsequent night's sleep. Usually the effect is to make the sleep more restless, but in many

[1] Samuel Renshaw, Vernon L. Miller, and Dorothy P. Marquis, *Children's Sleep:* A Series of Studies on the Influence of Motion Pictures; Normal Age, Sex, and Seasonal Variations in Motility; Experimental Insomnia; the Effects of Coffee; and the Visual Flicker Limens of Children. Payne Fund Studies of Motion Pictures and Youth. New York: Macmillan Co., 1933. Pp. xviii+238. $2.00.

cases the effect is the opposite. It is believed by the authors that both these conditions mark a reduction in the recuperative effect of the sleep though this conclusion seems by no means certain. The effect of the movies often persists beyond the night of attendance. Coffee taken at the evening meal, although the children were not accustomed to drinking it, caused considerably less restlessness than did the movies, nor was the effect increased when the coffee was taken on an empty stomach. Kaffee Hag was in no way different in its effects from genuine coffee.

The movie influence is not limited to changes in motility during sleep. The extent to which the total impression effect from a film may be redintegrated later, to influence the course of subsequent thought or conduct, is not revealed by our technique. We can conclude, however, from our results that seeing *some* films does induce a disturbance of relaxed, recuperative sleep in children to a degree which, if indulged with sufficient frequency, can be regarded as detrimental to normal health and growth. For certain highly sensitive or weak and unstable children the best hygienic policy would be to recommend very infrequent attendance at carefully selected films. On the other hand, certain films may have an instructive or cathartic and sedative effect that is good. We do not believe that any sweeping generalization can be made about the "type" of film or "type" of child most likely to be influenced (excepting, of course, the abnormals). There is a distinct need for careful, intensive study on individual children's reactions to movies, observed over a longer time than we have had at our disposal [p. 155].

E. H. CAMERON

UNIVERSITY OF ILLINOIS

Curriculum enrichment for superior children.—A recent investigation[1] of the possibilities of providing enriched instructional materials for superior children is of interest for at least three reasons: Any study of the grossly neglected interests of the superior child is welcome; studies in the administration of the curriculum are much more rare than they should be; and there are too few studies concerned with matters that are within reach of the typical classroom teacher. On all these counts Dransfield's study is a worthy contribution.

The procedure is the well-known technique of the controlled experiment dealing with 170 pairs of pupils. The groups were equated by means of standardized measures, and the procedure is satisfactory in all respects. Both groups were taught by the same teachers. The control group was taught in the conventional manner, while the experimental group devoted their extra time to the study of enrichment units. The units were concerned with fairy tales and folk lore in Grade III, with Colonial life in Grade V, and with population movements in Grade VII. After one semester the two groups were tested, and there was a difference of 9 points in favor of the experimental group, with a critical ratio of 5.366. The author concludes that the recitation time of the pupils can be re-

[1] J. Edgar Dransfield, *Administration of Enrichment to Superior Children in the Typical Classroom.* Teachers College Contributions to Education, No. 558. New York: Teachers College, Columbia University, 1933. Pp. vi+108. $1.50.

duced in one or more specific subjects without injury to the regular studies and with profit in their enrichment work.

While the study is of general interest and merit, there are a few points at which the author did not fortify himself adequately. In the first place, the enrichment units, under ordinary circumstances, must be made out by the teacher; the author says merely that enrichment units should be available in large numbers, covering many fields of learning and vocations. This suggestion hardly gives a satisfactory solution for the cross-roads school.

Then there are two statistical matters which need attention. The author states that a critical ratio of 3 is satisfactory. This statement is correct in the case of standard error, but the author uses probable error. With the probable error a critical ratio of 4 or 4.5 is more convincing. Again, in calculating the probable error of differences, the author failed to use the correlation of his measures. Since the pupils were paired, the use of correlation seems defensible, and it would undoubtedly increase the significance of the difference found.

Those who oppose test questions of a factual character will be likely to object to the technique at this point.

All these matters are relatively unimportant in comparison with the author's demonstration that there is hope for the superior child, even in the conventional school with its meager equipment, crowded rooms, and over-burdened teachers. Every school administrator and teacher who is interested in the welfare of such children should read this monograph.

W. J. OSBURN

OHIO STATE DEPARTMENT OF EDUCATION

Standards for the construction of elementary-school buildings.—This book of standards for elementary-school buildings[1] is the 1933 revised edition of Strayer and Engelhardt's book which first appeared in 1916. These authors have published companion books of standards under the titles *Standards for Junior High School Buildings* and *Standards for High School Buildings*. Score cards have been developed to accompany each book of standards.

In the Introduction to the volume under review the authors discuss the development of school-building standards from their first appearance in 1831, research on school-building development, educational participation in the planning of school buildings, the development of significant literature concerning school buildings, and the development of the revised score card with the allotment of points on the items of the score card. A facsimile of the score card is presented showing the major and the minor divisions and the points allotted to each.

A chapter is given to the presentation and discussion of standards for each of the following topics: site, building, service systems, general classrooms, kin-

[1] George D. Strayer and N. L. Engelhardt, *Standards for Elementary School Buildings*. New York: Teachers College, Columbia University, 1933 (revised). Pp. vi+182.

dergarten, special-activity rooms, general service rooms, and administration rooms. The use of the score card and the preparation of the report are discussed in one chapter, and excerpts from dedicatory speeches are presented as an aid to the administrator. The Bibliography presents a selected list of eleven titles dealing with the planning of elementary-school buildings, eleven annual reports of superintendents of schools in which discussions of elementary education are to be found, and eighty-seven titles referring to available literature covering the use of the Strayer-Engelhardt Score Cards for School Buildings.

A more detailed presentation of school-building standards in the revised edition has been possible for the following reasons.

> There has been very significant research developed by commissions or associations interested in school-building improvement, as well as by individual students working in the laboratories of our colleges of education. Practically no aspect of school-building development has been left untouched by research in some form or other. Lighting, ventilation, travel distances, operation of plant, utilization, acoustics, and the like have been made the basis of study by those who have sought the best ways and means of improving buildings at the lowest cost [p. 2].

The authors state that the standards which are presented are based not on the judgments of a few individuals but on the vast array of research and writing which is available to date.

The long experience of the authors in surveying school buildings in communities in all parts of the United States has enabled them to keep their standards in accord with the actual working conditions of the schools. School-building needs and standards have been discussed with superintendents, supervisors, principals, and classroom teachers. These people, in large groups, have contributed to the allotment of points to the different items on the score card and to the determination of the major and the minor subdivisions that should be included.

This revised edition is extensive in its presentation of standards; it is up to date; its standards, wherever possible, are based on research studies; and it recognizes the new demands made on our housing facilities by the changing educational program of the elementary school. These standards are essential in the evaluation and the planning of school buildings to meet modern educational demands.

OSMAN R. HULL

UNIVERSITY OF SOUTHERN CALIFORNIA

A textbook in educational psychology.—In the Preface of a textbook[1] in educational psychology the author says:

> It would be an advantage if educational psychology could cease to be an assemblage of miscellaneous and unrelated topics, so that prospective teachers might come to view their work in at least as unified and systematic a way as the facts justify. The present

[1] H. L. Hollingworth, *Educational Psychology*. New York: D. Appleton & Co., 1933. Pp. xvi+540. $3.00.

text is written in the conviction that the human mind is really coherent; that the principles of learning and teaching are actually simple and capable of intelligible generalization, on the basis of observed facts [p. v].

The most noticeable departure from other textbooks on the subject lies in the arrangement of the materials, especially in the case of topics usually grouped under learning. Part I, "Psychological Foundations," has chapters on learning (cue reduction), control and mental balance, motivation, and the learner (development, guidance, individual differences). Such topics, however, as curves of learning and forgetting, learning and age, distribution of practice, global versus piecemeal learning, avenue of stimulation, and knowledge of results are found in Part II, "Techniques of Instruction," along with measurement in education and the education of exceptional pupils. Transfer of training is discussed in Part IV, "General Educational Problems," along with psychology and the curriculum, behavior of school children, psychology of the teacher, psychology of educational change, and the place of psychology in education. Part III, "Psychology of School Subjects," has five chapters on the types of learning represented by typewriting, reading, science, arts of expression and appreciation, and education for mental health. Data on curves of work for various kinds of materials are given in the chapter on typewriting.

On the whole, the references are well selected and up to date. Some questionable omissions are as follows: G. M. Ruch, *The Objective or New-Type Examination* and Ruch and Rice, *Specimen Objective Examinations* in the discussion on page 262; bibliographic citation to Pechstein's (not "Peckstein's") investigation on part versus whole learning of pencil mazes; Bassett's study of retention of history in Grades VI, VII, and VIII; Broening, *Developing Appreciation through Teaching Literature;* Healy and Bronner, *Delinquents and Criminals* in the chapter on the behavior of school children; and Woodrow's experiments on transfer, which seem to have more value for *educational psychology* than some of those given, although they may have less value in the *history of psychology.*

After pointing out the unity of action, thought, and feeling, the book gives little aid to the teacher who is attempting to lead her pupils to suitable appreciations in various fields, other than a statement or two to the effect, for example, that the development of skill in reading "in its more mechanical aspects introduces the student to knowledge and invites appreciations and feelings" (p. 367). The discussion and references deal almost exclusively with acquisition of the arts of expression, utilizing much of the best literature on this topic.

On the basis of the evidence presented, the statement that "students of education [in a middle western university] here score very much as do those in the normal schools" (p. 489) should be, "students of education here score very much as do the *graduates* of the normal schools." In discussing "accomplishment ratios," the author shows good judgment by advising their use "with great caution." The real reason for the notable weakness of the achievement-quotient technique has been set forth, however, by Kelley, who has shown that intelligence and achievement batteries have 90 per cent of community of function, so

that "a scant one-tenth of the tests are involved in the measure of difference" and "judgments of individual differences between intelligence and achievement .... are quite unsound" (Truman Lee Kelley, *Interpretation of Educational Measurements*, p. 21).

As one would expect, Hollingworth's book is well written and readable. In common with other recent textbooks on the subject, it shows the influence of recent trends in psychological thought by including such topics as development, motivation, and mental hygiene.

FOWLER D. BROOKS

DEPAUW UNIVERSITY

A *textbook in geography for the elementary grades*.—The fourth volume[1] of a new series of textbooks in elementary-school geography, written to conform to the "single-cycle-plus" plan of organization, has recently been published. *Home Folks* and *World Folks*, the beginning books, introduced the formal study of geography by stories and studies of life in typical environments in the United States and foreign lands. *American Lands and Peoples* dealt with the Western Hemisphere, and the present volume describes the countries of the Eastern Hemisphere. A final book of the series will present "a study of world-industries and world-trade with especial reference to the part taken by the United States" (p. iii).

It will be remembered that the author's earlier two-cycle elementary textbooks (Human Geography: Book One, *People and Countries;* Book Two, *Countries, Regions and Trade*) were developed on a regional-human geography basis in which continental, but not national, integrity was respected. From the purely regional-human organization the author has shifted to the present arrangement emphasizing countries as the essential pattern of the book structure.

The current volume begins with the comparatively simple adjustments made by the Kirghiz to their desert and grassland regions and follows with the related peoples of Arabia, Persia, and the great desert lands of northern Africa. Next a study of the Mediterranean countries precedes that of the nations of northwestern, central, and eastern Europe. Southern and eastern Asia are studied by nations. Africa, south of the Sahara, is given a regional treatment, but Australia and the Pacific Islands are presented as political unities.

Within the units the selection of materials is guided by the dominant adjustments made by the people to their natural environments. However, opportunities to connect pertinent historical or cultural understandings with their geographic settings are by no means neglected, for example, in showing Britain before and after the Industrial Revolution and in setting forth the geographic significance of Siberia as a former land of exile. The larger subject-matter units are broken into smaller divisions, each of which is followed by suggestions of "Things to think about and do." These contain a very great variety of teaching

[1] J. Russell Smith, *Foreign Lands and Peoples*. Philadelphia: John C. Winston Co., 1933. Pp. viii+384. $1.44.

devices devoted to helping the pupil fix in his mind the important understandings and in providing interesting and instructive exercises for extra work.

The author has undoubted ability to tell geographic material in an interesting fashion. By projecting himself frequently into the story, he establishes in the reader a certain confidence and respect for the details presented. Typical illustrations are: "I have seen olive trees growing on south slopes" (p. 66); "One May morning I took the Istanbul express" (p. 46); "One November day I took a walk on the Great Plain of China" (p. 212); or under a picture, "I snapped these cattle while they were grazing along the famous Sea of Galilee" (p. 83). By describing real people in connection with certain of the adjustments made in some of the countries, the author adds to the illusion of reality. The statement, "Mr. MacKenzie is a shepherd. I visited him on the Scotch highlands" (p. 103), vouches for the actual details given of the shepherd's work. In a little different way the opening statement, "Michael Cenovitch is a Serbian boy. His home [is] in a village in central Yugoslavia" (p. 175), aids the description of the life of his family in an isolated valley in the Balkan neighborhood. By no means all the material has this personal touch. Much of the narrative is a simple, straightforward presentation of factual context in language well suited to children in the upper grades.

In mechanical makeup the inside of the book is more attractive than the former series. The covers and binding conform to the high standard of the earlier volumes, but the use of fewer lines on a page and the use of larger type (both big advantages) give the pages a less crowded appearance. There are more full two-column illustrations than were included in the older textbook, and all pictures and maps have been placed at the top of the page or in one column so that the text is not broken into sections by pictures extending over into the second column. With few exceptions, the illustrations are well chosen and are entirely new. The reading of physical maps is made easier by the omission of the regional-division lines used in the former series. Political maps are simple and clear. The human-use maps achieve rather well simplicity of design and color, and yet they manage to suggest through clever color symbols something of the appearance of the land itself. This suggestion is most successful, of course, on maps of territories where human adjustment is still in its simplest stages, such as the indication of the northern forest lands by little green pine trees or the desert lands by little orange dots. The many complications of modern industrialism are avoided. The maps keep their symbolic portrayal by relegating type pictures to the margins of the page and indicating their location by numbers on the map.

World political geography is brought up to date in this book. Thus, the Manchurian situation and the problems of the Polish Corridor are set forth in their geographic aspects.

A valuable feature in the treatment of nations is the directing of the pupil's attention into the future. Too often children are prone to consider conditions in any given nation as fixed and not in a state of change upon which the future

surely depends. The author very clearly indicates possible lines of development in the utilization of natural resources, such as "The Future of the Great Desert and the Oases," and often makes summarizing statements of present critical situations leaving the answer for the reader.

Teachers who are looking for straightforward presentation of subject matter, uninterrupted by thought-provoking questions or exercises for the reader to answer as the text is read, will find the book as a whole a valuable contribution to modern literature in elementary-school geography.

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